



RESEARCH CENTRE UPDATES

Biospectrum 2023

The International Conference on 'Emerging Trends and Innovations in Biotechnology' is a prestigious event hosted by the School of Biosciences at Mar Athanasios College for Advanced Studies Tiruvalla (MACFAST) 30th November 2023 to 3rd December 2023. The inauguration of our International Conference marked a momentous occasion, as our esteemed Research Director Rev. Dr. Mathew Mazhavancheril, who is also the research Director of MACFAST delivered an insightful address that resonated with the spirit of exploration and collaboration. The Director underscored the paramount importance of the conference and eloquently articulated the transformative potential inherent in the field of Biotechnology and emphasized the need for a platform that brings together leading academicians, scientists, researchers and scholars.



The inaugural session was hosted with the august presence of the Metropolitan Archbishop of Tiruvalla His Grace Most Rev Dr Thomas Markoorilos, Prof. Ashok Pandey, eminent dignitaries, management heads and Directors of MACFAST alongside 55 distinguished speakers from more than 25 countries around the Globe.

The faculties and scientists from Pushpagiri Research Centre actively participated and showcased their research endeavours along with their Research Trainees on different projects carried out in their respective laboratories.



Amongst all, the noteworthy attendees were Dr. Aniket Naha, Dr. Yogesh Bharat Dalvi, Dr. Nebu George Thomas, and Dr. Soumya RS, whose active participation left a profound impact on the overall success of the event. Dr. Aniket Naha and Dr. Yogesh Bharat Dalvi actively took part in insightful discussions, sharing their expertise and experiences with the esteemed delegates and discussed on joint collaborative projects, patents and future collaborative interventions with PRC.



Poster Presentation by Research Trainees



Ms. Elizabeth Annie George (Research Trainee), presented a poster at Biospectrum 2023 entitled “Phytochemical Evaluation and Antimicrobial Efficacy of Piper betle against Carbapenem Resistant Escherichia coli: Evidence from in-vitro and in-silico Experimentations” under the guidance of Dr. Aniket Naha, Scientist, Medical Biotechnology Laboratory and Computational Drug Designing Laboratory. The research focuses on exploring the potential of Piper betle in combating Carbapenem Resistant Escherichia coli, a critical concern in the realm of antimicrobial resistance

Ms Treesa Sani, Research trainee student, presented her work as oral presentation at International Conference on Emerging Trends and Innovations in Biotechnology, 7th Biospectrum 2023, in the topic entitled ‘Green synthesis of calcium carbonate nanoparticles using Benincasa hispida extract and their anti-inflammatory, anti-antioxidant and photo catalytic activity’ under the guidance of Dr Soumya R.S, Scientist, Pushpagiri Research Centre. The work mainly focussed on the potential use of calcium carbonate nanoparticles in anti-cancer studies



In the momentous closing address, Rev. Dr. Mathew Mazhavancheril, the Research Director at MACFAST and Director of the Pushpagiri Research Centre (PRC), extended his heartfelt thanks and appreciation to mark the culmination of the International Conference by expressing his profound gratitude to the diligent Organizing Committee, acknowledging their relentless efforts in orchestrating a seamless and enriching conference experience leading to the thumping success of the event



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Successful Hands-On Training with Martin Christ Lyophilizer at Pushpagiri Research Centre

PUSHPAGIRI RESEARCH CENTRE: 12TH DECEMBER 2023

We are thrilled to share the key highlights from a recent hands-on training session at Pushpagiri Research Centre, featuring Mr. Dipu K. from Labmate Pvt Ltd. This training centered around the Martin Christ Lyophilizer (Alpha 1-2 LSC Basic) and its practical application in managing microbial samples.

Conducted under the expert guidance of Dr. Yogesh Bharat Dalvi and Dr. Aniket Naha, the primary participants were key members of our microbiology team: Dr. Pavithra Padmakumar (PG resident), Ms. Resmi Reveendran (Jr. Microbiologist), and Sreeja Raviprasad (Jr. Microbiologist).

The overarching goal of this comprehensive training was to standardize the protocol for lyophilizing microbial samples and sealing them under vacuum conditions for prolonged storage. The process involved pre-freezing samples 24 hours in advance in long-necked ampules at minus 80 degrees, containing microbial samples loaded with skimmed milk followed by lyophilisation for 16 hours. Participants gained proficiency in the intricate steps of freeze-drying and subsequent sealing using an LPG-oxygen torch under vacuum.

Mastery of this technique empowers our team to confidently store microbiology samples at room temperature, establishing a valuable resource for reference samples in ongoing research. This hands-on training not only enhanced our team's skills but also opened up new possibilities for efficient and effective sample preservation.

We express our gratitude to Rev. Fr. Mathew Mazhavancheril, Research Director, for his encouragement and unwavering support for research activities. Special thanks to Mr. Dipu K. for sharing his expertise, and kudos to our dedicated team for their active participation and seamless coordination.

As we look ahead, we are eager to implement these newly acquired skills in our research endeavors, further advancing our capabilities in the field of microbiology. For inquiries regarding the utilization of the lyophilization facility at Pushpagiri Research Centre, please contact:

Dr. Yogesh Bharat Dalvi,
Scientist, Pushpagiri Research Centre
Mobile: 7972366799
Email: yogesh_dalvi@pushpagiri.in



Research Methods



In the absence of our Research Director, Rev Dr Mathew Mazhavancheril, Dr Nebu George Thomas represented PRC and gave inaugural speech in the One day International Conference on Mixed Research Methods at the Pushpagiri College of Nursing

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Chapter

Magnetic Nanoparticles in Biomedical Applications

By Namitha Binu, Ruby Varghese, Yogesh B. Dalvi

Book [Modern Magnetic Materials](#)

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ABSTRACT

Nanomedicine introduced various novel materials for the delivery of drugs as well as applications in CT scans and MRI, PET, and CT, where its legitimacy is directly proportional to its molecular signatures. Magnetic nanoparticles (MNPs) have now been believed to have magical properties, which have gained a wide interest present time and have impacted nanomedicine biosensing and analytical chemistry fields. The modification and functionalization of MNPs with various kinds of ligands of biomolecules have already been exploited. The application of magnetic particles can be easily observed in the microscopic manipulation of Nanosized and micro-objects. Manipulating these particles needs immense care, especially on their immunogenicity and

PRC CHRISTMAS CELEBRATIONS

The christmas celebrations in PRC took place on the 22nd of December 2023. It started of with a wonderful Christmas message from the Director Rev. Ft. Dr. Mathew Mazhavancheril, followed by exchange of christmas gifts and joyful christmas carols



PUBLICATIONS

DEPARTMENT OF PHYSIOLOGY

National Journal of Physiology, Pharmacy and Pharmacology

RESEARCH ARTICLE

Prevalence of stress and its association with vitamin D status in undergraduate medical students

Amrutha Mary Zachariah¹, Susan John¹, Alice David², Ann U Thomas¹, Leya Elizabeth Babu¹

¹Department of Physiology, Pushpagiri Institute of Medical Sciences and Research Centre, Thiruvalla, Kerala, India, ²Department of Medical Research, Epidemiology and Biostatistics, Believers Church Medical College Hospital, Thiruvalla, Kerala, India

Correspondence to: Leya Elizabeth Babu, E-mail: leyalzbth@gmail.com

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ABSTRACT

Background: Medical education is considered to be the most stressful learning process globally. Stress can have a negative impact on the academic performance and psychosocial well-being of the students. Perceived stress scale-10 (PSS-10) is a useful tool to assess mental stress. Being involved in the neurotransmitter systems in the brain; vitamin D may have a role in the perception of stress. Hence, finding any association between stress and vitamin D will help us to address stress suitably. **Aims and Objectives:** The aims and objectives were to assess the prevalence of stress in medical undergraduates and to find its association with vitamin D levels in the body. **Materials and Methods:** The perception of stress was assessed in 79 students of age between 18 and 21 years using the PSS-10. A total score above 14 is considered moderate to high stress. The serum vitamin D was measured by the chemiluminescent immunoassay technique. Spearman's correlation coefficient

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ORIGINAL ARTICLE

Anatomy Teacher's Perspectives on Using AnaVu: A Novel Low-resource Stereoscopic Projection System for Neuroanatomy Education

Yohannan, Doris George; Oommen, Aswathy Maria; Raju, Nithin Kadakampallil¹; Thomas, Bejoy²; Rajan, Jayadevan Enakshy³; Govindapillai, Umesan Kannavilakom⁴; Harish, Pawan⁵; Kapilamoorthy, Tirur Raman⁶; Kesavadas, Chandrasekharan⁷; Sivaswamy, Jayanthi⁸

Author Information

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Abstract

Background:

The authors had earlier studied the utility of stereoscopic projection of neuroanatomic three-