PHARMALOGOS

DEPARTMENT OF PHARMACOLOGY - NEWSLETTER

An Official Publication of

DEVAKI AMMA MEMORIAL COLLEGE OF PHARMACY

(Affiliated to Kerala University of Health Sciences, Thrissur and Approved by PCI, New Delhi)

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INSTITUTION VISION

"Our college aims to cultivate innovative, ethical healthcare professionals who advance pharmaceutical education, research, and practice globally, benefiting local and global communities."

INSTITUTION MISSION

" To educate and empower students with the knowledge, skills, and values necessary to excel as compassionate and competent healthcare professionals, while fostering excellence in pharmaceutical research, practice, and community engagement to enhance the well-being of individuals and populations."

FROM THE EDITOR'S DESK .....

Dear Readers,

Welcome to the latest edition of our pharmacy college newsletter! We are delighted to reconnect with you as we embark on a new chapter filled with promise and potential. This newsletter serves as a window into the dynamic world of pharmaceutical education, research, and practice that thrives within our institution.

In this issue, we are excited to showcase the myriad accomplishments and advancements achieved by our faculty, students, and alumni. From groundbreaking research endeavors that push the boundaries of scientific discovery to innovative teaching methodologies that inspire the next generation of pharmacists, our community continues to demonstrate a steadfast commitment to excellence.

Within these pages, you'll find insightful articles that highlight the diverse range of activities and initiatives undertaken by our college. From community health outreach programs that bring vital healthcare services to underserved populations to collaborative partnerships with industry leaders that drive forward the frontiers of pharmaceutical innovation, each story reflects our unwavering dedication to making a positive impact on society.

We're especially proud to spotlight the achievements of our alumni, whose successes serve as a testament to the transformative power of a pharmacy education from our institution. Their stories of leadership, resilience, and innovation inspire us all and remind us of the profound difference that pharmacists can make in the lives of others.

As we navigate the ever-evolving landscape of healthcare, our commitment to excellence remains unwavering. We are deeply grateful for your continued support and partnership as we strive to fulfill our mission of advancing pharmacy education, research, and practice for the betterment of humanity.

Thank you for joining us on this journey of discovery, innovation, and impact.

With Best Regards,
Dr. E. Tamil Jothi
Editor-in- Chief

"Success is not final, failure is not fatal: It is the courage to continue that counts."

~ Winston Churchill

In the remembrance of
Sri. K.V. Sankaranarayanan
(01.01.1948 - 12.07.2013)
Founder, Devaki Amma Memorial Institutions

RESEARCH ACTIVITIES

The department is driven by the objective of anticipating the forthcoming requirements for human resources in response to the rapid growth of academic and scientific research, particularly within the realm of pharmacology. This initiative seeks to proactively identify the evolving skill sets and expertise needed to support the advancements and demands of the dynamic field of pharmacological research. By staying ahead of these future needs, the department aims to ensure that it can effectively cultivate and deploy the necessary talent to drive innovation and excellence in pharmacology.

Ongoing Research Project

Sl. No.	Project Title	Students Name	Guides Name
1	Evaluation of neuroprotective activity of *Macaranga peltata* leaves extract in scopolamine induced memory deficit mice.	Aiswarya Lakshmi P.	Dr. E. Tamil Jothi
2	Pharmacological evaluation of marine red algae *Hypnea spinella (C. Agardh) kutzing* in haloperidol induced rodent model of Parkinson's disease.	Amirashirin K. T.	Dr. E. Tamil Jothi
3	Ameliorative effect of Cinitapride on Aluminium chloride induced animal model of Alzheimer's disease.	Mohammed Sahad P.	Mr. Mridhul Mohan P.
4	Nutritional supplement to ameliorate depression *via* microbiota - gut-brain axis in rat.	Mumthas Beegum Palamadathil Chemban Thodika	Dr. E. Tamil Jothi
5	Impact of Fisetin in a Cuprizone-induced animal model of multiple sclerosis.	Zeenath P.	Dr. Anson S. Maroky
6	The role of Carvedilol in Amphetamine induced schizophrenic animal model.	Amna Hameed Thayyil	Dr. Anson S. Maroky

Completed Research Project

Sl. No.	Project Title	Students Name	Guides Name
1	*In-vitro* and *in-vivo* evaluation on antiulcer activity in whole plant extract of *Commelina erecta.*	Fahmeeda P. P.	Dr. E. Tamil Jothi
2	*In-vitro* and *in-vivo* evaluation on Antihyperlipidaemic activity in *Acalypha hispida* extract by using high fat diet induced rats.	Prajna P. P.	Dr. E. Tamil Jothi
3	Phytopharmacological evaluation on antiepileptic and antidepressant activity in Leaves extract of *Impatiens balsamina* using rodents.	Reshmi Rajan	Dr. E. Tamil Jothi
4	Evaluation on whole plant Ethanolic extract of *Hemigraphis colorata* against letrazole Induced polycystic ovary syndrome".	Shana K.M.	Dr. E. Tamil Jothi
5	Evaluation on wound healing Activity in whole plant extract of *Gloriosa superba*	Vishnupriya V.V.	Dr. E. Tamil Jothi

Research Publications

The active involvement of both faculty members and students in research activities is truly commendable. Engaging in research not only enriches individuals' knowledge and skills but also fosters significant advancements in their respective fields. Publishing papers in esteemed international journals plays a pivotal role in disseminating research findings and gaining recognition within the global scientific community. The dedication of faculties and students to research is clearly evidenced by the multitude of publications they have contributed to reputable international journals. These publications stand as testament to their commitment to advancing knowledge and contributing meaningfully to their fields of study.

1. Vishnupriya V.V. *et.al*., Gloriosa Superba (L): A Brief Review in World Journal of Pharmacy and Pharmaceutical Sciences; 2022.
2. Fahmeeda P.P. *et.al*., A Review on Medicinally active herbal weed Commelina diffusa: Traditional uses, Pharmacological Activity and Phytochemical Analysis in World Journal of Pharmacy and Pharmaceutical Sciences; 2022.
3. Shana K.M. *et.al*., A review on the Phytochemistry and pharmacology of Hemigraphis colorata in World Journal of Biology Pharmacy and Health Sciences;2022.
4. Prajna P.P. *et.al*., Traditional uses, Phytochemistry and Pharmacology of Acalypha hispida burm: A systemic review in World Journal of Pharmacy and Pharmaceutical Sciences; 2022.
5. Reshmi Rajan *et.al*., Phytochemical and Pharmacological potential of Impatiens balsamina in World Journal of Pharmacy and Pharmaceutical Sciences; 2022.

Patent Published

1. Dr. E. Tamil Jothi *et.al*., received a designed patent on "Digital ultrasonic homogenizer used for isolation of DNA and RNA protein" Innovation patent granted by IP India. Patent number: 396741-001.
2. Dr. E. Tamil Jothi *et.al*., received a designed patent on "Differential scanning calorimeter (DSC) for the measurement of melting point of compounds" Innovation patent granted by IP India. Patent number: 397136-001.
3. Dr Anson S. Maroky *et.al*., received a designed patent on "Laboratory water maze apparatus for monitoring neurotoxic activity" Innovation patent granted by IP India. Patent number: 384243-001.
4. Dr Anson S. Maroky *et.al*., received a designed patent on "Breast cancer detection device using micro calcification" Innovation patent granted by IP India. Patent number: 385768-001.

SCIENTIFIC EVENT ORGANIZED

Department of Pharmacology has organized two days international conference on "Bioinformatics in Quantum Leap of Drug Discovery and Development" on 24th and 25th January 2024.

The inaugural ceremony commenced with the presence of Shri Mr. M. Narayanan, Trustee & Manager of Devaki Amma Memorial Institution, who presided over the event, while Dr. G. Babu, the Principal, extended a warm welcome through his address. The program gained further significance with the inauguration conducted by the Chief Guest Dr. Ling Sing Wong, Professor hailing from the Interim Dean and Dean of the Faculty of Health and Life Sciences at INTI International University, **Malaysia**. Dr. Chea Sin, Dean of the Faculty of Pharmacy at the University of Puthisastra (UP), **Cambodia,** honored the conference as its distinguished guest.

GLIMPSES OF BQDD - 2024

MEMORANDUM OF UNDERSTANDING

MOU WITH **INTI INTERNATIONAL UNIVERSITY, MALAYSIA**

SCIENTIFIC TALK

Dr. E. Tamil Jothi

Presentation on Role of Zebra Fish in Drug Discovery as an Animal Model, International conference on "Bioinformatics in Quantum Leap of Drug Discovery and Development" on 24th and 25th January 2024.

Dr. Anson S. Maroky

International conference on Molecular Signaling and 9th Annual meeting of the society for molecular signaling, held on 1st to 3rd Feb 2024 in School of life Science, University of Hyderabad.

SCIENTIFIC EVENT PARTICIPATION

Third-semester M. Pharm students specializing in Pharmacology exhibited a keen interest in remaining updated on the latest developments and trends within the pharmaceutical sector. Their active participation in a variety of scientific events underscored their commitment to staying informed and engaged with the evolving landscape of pharmaceuticals. By attending these events, students not only expanded their knowledge base but also had the opportunity to network with industry professionals, fostering valuable connections for their future careers. This proactive approach to professional development highlights their dedication to continuous learning and readiness to adapt to the dynamic nature of the pharmaceutical fields.

Two-day National level workshop on "Basic Techniques in Experimental Pharmacology" organized by JSS College of Pharmacy, Ooty, Nilgiri, Tamil Nadu on 28th and 29th July 2023.

Amna Hameed Thayyil presentated E-poster in International conference on BQDD organized by Devaki Amma Memorial College of Pharmacy, Chelembra, Malappuram on 24th and 25th January 2024.

Two-day National level conference on "Nanotechnology in Drug Delivery System - A Current Scenario and Future Scope" organized by Nehru College of Pharmacy, Pampady, Thrissur on 5th and 6th December 2022.

The International seminar on "Global Horizons: Navigating Higher Studies, Research and Career Abroad" organized by Moulana College of Pharmacy, Perintalmanna, Malappuram on 16th December 2023.

Two-day International conference on "Bioinformatics in Quantum Leap of Drug Discovery and Development" organized by Devaki Amma Memorial College of Pharmacy, Chelembra, Malappuram on 24th and 25th January 2024.

ARTICLE

ARTIFICIAL INTELLIGENCE IN PHARMACOLOGY RESEARCH AND PRACTICE

The use of artificial intelligence (AI) in healthcare, particularly in the field of pharmacology, has experienced significant growth in recent years. AI has found application across various stages of pharmacology research and clinical practice, ranging from early drug discovery to real-world data analysis. Different types of AI models are utilized, including unsupervised clustering and supervised machine learning, along with natural language processing techniques for mining electronic health records (EHRs). This mini-review provides an overview of AI basics and explores its current applications in pharmacology research and clinical practice.

The rise of AI in pharmacology is evident from the increasing number of studies published on the topic. A search on PubMed reveals a tenfold increase in publications on "artificial intelligence" and "pharmacology" from 2017 to 2021. AI has been successfully applied in drug discovery and target identification for several years, and more recently, AI models have emerged to characterize patient populations and predict individual drug responses, thereby encompassing the entire drug discovery to personalized medicine pipeline.

Clinical trials are a crucial phase in drug development, and AI can contribute to improving patient selection and recruitment by analyzing large volumes of EHR data to identify eligible patients likely to participate. AI can also aid in monitoring patients during trials, utilizing real-time data from wearable devices and mining EHRs to collect real-world evidence. Moreover, AI techniques, such as automated processing of imaging data, have demonstrated comparable accuracy rates to human radiologists, further enhancing clinical trial outcomes.

AI's utility extends beyond clinical trials to the analysis of real-world clinical data. EHRs contain valuable information on disease progression and drug response, but their unstructured nature poses challenges for comprehensive analysis. Natural language processing programs have been developed to extract useful data from EHRs, but accuracy can vary for different types of information. While structured data, such as laboratory measurements, can be extracted accurately, unstructured data, such as adverse drug events and comorbidities, present more challenges. Nonetheless, AI holds promise for processing and analyzing EHR data to generate clinically meaningful outcomes.

AI's impact on drug treatment optimization is notable, particularly in therapeutic drug monitoring (TDM). TDM involves individualizing drug dosage for drugs with narrow therapeutic windows. AI applications in TDM are still developing due to the need for large clinical datasets for model training. Statistical prediction models, often based on TDM data, are utilized to extrapolate drug exposure and optimize treatment strategies. However, these models are limited by the accuracy of the TDM measurements used for training.

Another area where AI shows potential is pharmacogenomics (PGx), which investigates how genetic variants affect drug metabolism. AI aids in developing prediction models that consider a broad range of genetic variants, allowing more accurate grouping of individuals based on predicted enzyme activity. For instance, AI-based models have been developed to predict the activity of the CYP2D6 gene, responsible for metabolizing a significant portion of commonly prescribed drugs. Neural network-based approaches demonstrate improved accuracies compared to traditional categorical models, enabling better prediction of enzyme activity. Furthermore, combining AI models with real-world data from EHRs using natural language processing can enhance treatment optimization. This integration allows prediction of drug metabolism and optimal dosing based on pharmacokinetics (PKs), linked with real-world outcomes documented in EHRs.

In conclusion, AI has become a widely used analytical tool in pharmacology, with applications spanning drug discovery, real-world evidence, and personalized medicine. However, caution must be exercised when applying AI models, considering potential biases and limitations in the training data. The trade-off between accuracy and interpretability is another challenge, particularly in clinical settings where transparency is crucial. Nonetheless, the future holds promise for AI's continued integration into pharmacology, leading to more effective drug discovery and optimized treatments for individual patients.

Amirashirin K.T.
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Mumthas Beegum P.C.
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