



# CHEM MASTERY



DEPARTMENT OF PHARMACEUTICAL CHEMISTRY - NEWS LETTER

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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To be the ultimate destination for training, practice and research in pharmacy education to cater the health needs of the society.

### INSTITUTION MISSION

To provide state-of-art infrastructure, research facilities with eminent faculties to disseminate advanced knowledge in pharmacy education through innovative teaching- learning process with human and ethical values.

### ISSUE HIGHLIGHTS

- ☞ Nipah Virus: Understanding the threat and safeguarding against it.
- ☞ Robotics revolutionizing drug development: Accelerating innovation and efficiency.
- ☞ Department activities.



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

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## NIPAH VIRUS: UNDERSTANDING THE THREAT AND SAFEGUARDING AGAINST IT

In recent years, emerging infectious diseases have posed significant challenges to public health systems worldwide. Among these emerging threats is the Nipah virus (NiV), a zoonotic pathogen with the potential for human-to-human transmission. Nipah virus was first discovered in an outbreak of acute encephalitis in Malaysia in 1998, in which 39% (109) of 283 people with recognized infection died. Using diagnostic tests developed as part of the first investigation, Nipah virus outbreaks have been recognized nearly every year in Bangladesh since 2001, and occasionally in neighboring India.

Over 70% of people infected with Nipah virus in South Asia have died. One-third of survivors have permanent neurological deficits. Several outbreaks have included short chains of person-to-person transmission among persons who contact secretions from Nipah patients. The ability of Nipah virus to spread to patient caregivers has raised concern that the virus might adapt to more efficient human-to-

human transmission. Nipah virus is considered a priority pathogen by the World Health Organization (WHO) and other health agencies, and it is listed as a Category C bioterrorism agent by the Centers for Disease Control and Prevention (CDC). Controlling Nipah virus outbreaks can be challenging due to its unpredictability, the difficulty in identifying infected individuals, and the potential for super spreading events in healthcare settings. This article explores the nature of the Nipah virus, its history, transmission, symptoms, and the measures taken to prevent its spread.

The Nipah virus is a member of the Henipavirus genus, which also includes the Hendra virus. Zoonotic threat Nipah virus primarily resides in fruit bats, which act as natural reservoir hosts. Infection can occur when humans come into contact with the bodily fluids or excreta of infected bats. Once an outbreak





occurs, the Nipah virus can spread among humans. Human-to-human transmission typically happens through close contact with infected individuals, particularly in healthcare settings. Nipah virus infection can manifest as a range of symptoms, including fever, headache, muscle pain, and dizziness. As the disease progresses, it can lead to severe respiratory problems and encephalitis, which can result in coma and death. These outbreaks can be particularly challenging to control due to the virus's ability to cause large-scale transmission in healthcare settings and communities. The incubation period for Nipah virus infection is typically 4-14 days.

The key to avoiding Nipah virus is by avoiding People living in or traveling to regions where Nipah virus is prevalent should avoid direct contact with bats, including not consuming fruits or date palm sap that might have been contaminated by bat excreta. The Frequent hand washing and proper hygiene measures can help reduce the risk of infection. Healthcare workers need to follow strict infection control practices to prevent nosocomial transmission. Individuals who are infected should be isolated from others to prevent human-to-human transmission. Contacts of infected individuals should be monitored and, if necessary, quarantined. Public education campaigns are crucial in regions where Nipah virus outbreaks are a risk. These campaigns inform people about the dangers of handling bats or consuming potentially contaminated food and drinks.

Since the symptoms of NiV infection are similar to other febrile diseases, early diagnosis is critical for containment of an outbreak and to facilitate appropriate patient care. Laboratory testing for NiV includes nucleic acid amplification testing, IgG/ IgM/ antigen ELISA, immune fluorescence assay, histopathology, and virus isolation and neutralization. Efforts to develop a vaccine against the Nipah virus are ongoing, as this would be a significant advancement in preventing future outbreaks. Promising progress has been made, and some vaccines have shown efficacy in pre-clinical trials, offering hope for the control of this virus.

The Nipah virus poses a serious threat to public health, particularly in regions where it is endemic. While the virus is not as widespread as some other infectious diseases, its potential for human-to-human transmission, high mortality rate, and difficulty in controlling outbreaks make it a significant concern. Preventive measures, public education, and vaccine development efforts are essential in managing and ultimately eradicating this deadly pathogen. Vigilance and preparedness are crucial to ensure the Nipah virus does not become a larger global health crisis. Ongoing research and surveillance efforts are crucial to better understand the virus, its ecology, and its potential for further outbreaks. These efforts are essential for the development of effective prevention and control strategies. Nipah virus remains a significant public health concern, and ongoing research, surveillance, and international collaboration are essential to mitigate its impact and prevent future outbreaks.

## ROBOTICS REVOLUTIONIZING DRUG DEVELOPMENT: ACCELERATING INNOVATION AND EFFICIENCY



**Mrs. Aparna P.**  
Lecturer

The field of drug development has witnessed remarkable advancements in recent years, thanks in no small part to the integration of robotics. Robotics is changing the landscape of pharmaceutical research, revolutionizing the way we discover, develop, and manufacture life-saving medications. From streamlining laboratory processes to enhancing drug formulation and testing, robotics has become a vital partner in the quest for innovative pharmaceutical solutions. One of the primary areas where robotics has made a significant impact in drug development is high-throughput screening (HTS). HTS involves the rapid testing of a vast number of compounds for their potential therapeutic properties. Automated robotic systems excel in handling this complex, high-volume workload. These machines accurately dispense reagents, prepare assay plates, and

analyze data, allowing researchers to test thousands of compounds in a fraction of the time it would take manually.

In addition, robotics plays a crucial role in compound management. Drug libraries, often containing thousands of chemical compounds, require precise storage, retrieval, and distribution. Automated systems ensure the integrity of these compounds and facilitate their efficient use in various drug discovery processes. Robotics brings efficiency and precision to various laboratory tasks, from pipetting to sample preparation. The use of robotic systems in these processes reduces human error and enhances the reproducibility of experiments. Researchers can rely on the consistency provided by robots, leading to more reliable results and faster drug development cycles.





Furthermore, robotics is pivotal in assay development, simplifying complex, multi-step procedures with accuracy and repeatability. Researchers can focus on the scientific aspects of assay design and leave the repetitive, meticulous tasks to automated systems. In medicinal chemistry, the parallel synthesis of various analogs and derivatives of potential drug candidates is essential for optimizing these compounds. Robotics plays a crucial role in this, allowing chemists to rapidly generate and test a wide range of chemical structures. It accelerates the process of identifying the most promising drug candidates.

Robotic systems are also employed in drug formulation and manufacturing, ensuring consistent product quality. From tablet compression to packaging, robots work in sterile environments and maintain high standards in pharmaceutical production. This guarantees that patients receive medications of the highest quality. High-content screening is another area where robotics excels. It allows the simultaneous measurement of multiple parameters within individual cells or small organisms, providing insights into cellular responses to potential drugs. This technology is invaluable for drug discovery, offering a deeper understanding of a drug's mechanism of action. Moreover, robotics aids in data management and analysis. With the massive amount of data generated during drug development, automation becomes a necessity. Automated data handling and machine learning algorithms help researchers process and interpret large data sets more effectively, guiding them to make informed decisions.

As technology continues to advance, we can expect even greater integration of robotics in the pharmaceutical industry. Robotics in drug development is not only about automation but also about opening up new avenues of exploration. It empowers researchers to tackle more complex challenges and discover drugs that were previously out of reach. The marriage of artificial intelligence and robotics promises to further enhance drug development. These technologies can autonomously design experiments, predict drug interactions, and discover novel compounds. This could lead to more personalized medicine, where treatments are tailored to an individual's genetic makeup. In conclusion, robotics is transforming the landscape of drug development by speeding up processes, improving precision, and enabling the exploration of new frontiers in pharmacology. Its role will continue to expand as we navigate the ever-evolving challenges of healthcare and work towards innovative pharmaceutical solutions that can save and improve lives. The future of drug development is undoubtedly a future intertwined with robotics.

## DEPARTMENT ACTIVITIES

### Ph. D. SCHOLARS IN DEPARTMENT

NAME	UNIVERSITY	REG. No.
Mrs. Ayswarya K.	Manipal University	230600125
Mrs. Jyothisree G	VELS	UP18P9771003
Mrs. Shalima N. K.	Vinayaka Mission University	23PH01AP10
Mrs. Nimmi. M.	Vinayaka Mission University	23PH01AP06

## CONFERENCES / WORKSHOPS ATTENDED



**Dr. Biju C. R.** has invited as a speaker in PharmaskillPro, a five days continuing education programme for pharmacists conducted by Kerala State Pharmacy Council in association with Kerala Institute of Local Administration (KILA). He had given a seminar on the topic "Antibiotics and antibiotic resistance" at KILA, Thrissur on 14.09.2023.



**Mrs. Shalima N. K.** along with 4<sup>th</sup> Semester M. Pharm & 8<sup>th</sup> Sem B. Pharm students, has participated as a delegate in a two days workshop on 'Click-2 drug: hands on training in various drug designing tools' conducted by Jamia Salafiya Pharmacy College from 05.06.2023 to 06.06.2023.





**Dr. Biju C. R. & Dr. Arunlal V. B.** have participated in 1<sup>st</sup> Kerala Pharmaceutical Congress (Kpc-2023) at St. James College of Pharmacy, Chalakkudy on 25.02.2023.

**1<sup>st</sup> semester M. Pharm (Pharmaceutical Analysis & Pharmaceutics) students** have visited Sangrose Laboratories, Alappuzha on 09.02.2023.



**4<sup>th</sup> Semester M. Pharm Pharmaceutical Chemistry and Analysis students** have participated in 'International Seminar on Recent Advances in Pharmaceutical Sciences' at Govt. Medical College, Kozhikode on 02.02.2023.

**Mrs. Neethu Dasan, Mrs. Princy C. & Mr. Shijin M. S.** along with 1<sup>st</sup> year D. Pharm students have visited Water Treatment Plant, Mavoor as part of D. Pharm field visit on 02.02.2023.



**Dr. Arunlal V. B., Dr. Byju K. and Mrs. Shalima N. K.** have presented lectures in KUHS induction program for new B. Pharm & Pharm. D, students from 12.01.2023 to 13.01.2023.

**Dr. Byju K., Mrs. Shitha G. & Mrs. Ayisha Nitha P.** along with 3<sup>rd</sup> Semester M. Pharm (Pharmaceutical Chemistry & Analysis) students have participated in national seminar (MASCON - 2022) on Fundamentals of Pharmacovigilance and Chiral Drug Discovery at Malik Deenar College of Pharmacy on 21.11.2022





## RESEARCH PUBLICATIONS

1. **Shalima N. K. et al**, conventional and microwave assisted synthetic method of 1, 3, 4 - thiaziazole derivatives - a review, European Journal of Pharmaceutical and Medical Research, 2023, 10(04).
2. **Ayisha Nitha P. et al**, In silico design and docking studies of novel benzothiazole derived triazole as a potential antidiabetic agents, World Journal of Pharmaceutical and Life Sciences, 2023, 10(2), 104-111.
3. **Mrs. Jyothisree G. et al**, Isolation of bioactive constituents from *Trigona iridipennis* including its metabolic products for in vivo pharmacological screening for antiparkinsonism, International Journal of pharmacy and Pharmaceutical Research, 2022,25(1), 372.

## ACHIEVEMENTS

**Mr. Arunlal V. B. & Mr. Byju K.** has successfully completed Ph. D. degree in Pharmaceutical Sciences from JJT University, Jaipur in October 2023.



Dr. Arunlal V. B.



Dr. Byju K.

We are proud to announce that all the five students of M. Pharm Pharmaceutical chemistry (2020 batch) have placed in different institutions within one month after completion of their course.

*Congratulations*



**Ms. Adithi Sibi**, Asst. Proff.  
NITTE College of Pharmaceutical Sciences,  
Bangalore



**Ms. Asitha Sivadas**, Asst. Proff.  
Jamiya Salafiya College of Pharmacy,  
Malappuram



**Ms. Shahma Mariyam**, Asst. Proff.  
Jamiya Salafiya of College Pharmacy,  
Malappuram



**Mrs. Shilpa Sathish K.**, Asst. Proff.  
National College of Pharmacy,  
Manassery, Kozhikode



**Mrs. Rinjuna Renas**, Asst. Proff.  
Yenepoya Pharmacy College &  
Research Centre, Mangalore

**Dept. of Pharmaceutical Chemistry**

**CHEMISTRY JOKES**

ANYONE KNOW ANY JOKES ABOUT SODIUM?

**Na**

GOLD IS THE BEST ELEMENT BECAUSE

IT'S **Au** SOME.

DID YOU HEAR OXYGEN WENT ON A DATE WITH POTASSIUM?

IT WENT **O K**

WHAT SHOULD DO YOU DO WITH A DEAD CHEMIST?  
BARIUM

MAKE LIKE A PROTON AND **STAY POSITIVE**

CREATED BY  
DR. ARUNLAL V B





**B. Pharm. (2018 batch) students** have secured 100% results in their elective subject 'Advanced Instrumental Techniques' in KUHS 8<sup>th</sup> semester B. Pharm. Degree Regular Examinations held in July 2023.

**M. Pharm. (Pharmaceutical Analysis) students (2020 batch)** have successfully completed the thesis presentation in KUHS 4<sup>th</sup> Semester M. Pharm. Degree Regular Examinations held in June 2023.



**M. Pharm. (Pharmaceutical Analysis) students (2021 batch)** have secured 100% results in KUHS 1st semester M. Pharm. Degree Regular Examinations held in April 2023.

**Dr. Arunlal V. B.** has become the individual champion in 'Pharmacy Inter Collegiate Staff's Sports Arena - 2023 (PICCSA - 2023), organised by DAMCOP from 03.03.2023 to 04.03.2023.



### **SOCIAL ACTIVITIES**

Staff and students of the department have participated in 'Jeevamsham - 2023', a campaign to make plastic waste free Chelembra Panchayat on 01.11.2023.





Staff and students of the department have participated and donated blood in the Blood Donation Camp organised by NSS unit of DAMCOP on 22.08.2023.



Dr. Arunlal V. B. & Dr. Byju K., along with 8<sup>th</sup> Semester B. Pharm and 2<sup>nd</sup> Semester B. Pharm students, have participated in annual camp 2022-23 'Gamasancharam' at Poovanchi Tribal Colony on 15.01.2023.



Staff and students have participated in 7 days NSS camp 'URAVU-2022' at Chithalayam from 28.09.2022 to 04.10.2022.





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