



PUSHPAGIRI COLLEGE OF PHARMACY THIRUVALLA

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PHARMA ECHO

Vol.6 (2), 2022

A BIENNIAL NEWSLETTER OF PUSHPAGIRI COLLEGE OF PHARMACY

OUR VISION

We Care.... God Cure...

OUR MISSION

To work towards a knowledge society with life in abundance through science and technology, improving health care for our immediate community, the state, the country and the world at large.

INSIDE THIS ISSUE

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- Events and Activities
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PRINCIPAL'S MESSAGE



It gives me immense pleasure to know about the forthcoming issue of the college newsletter "PHARMA ECHO". The newsletter has emerged as a valuable source to share information about our college with our stakeholders, alumni, staff and students about the development and achievements of our college. Though the unprecedented time of COVID-19 has restrained many activities at the institute, we have done remarkable work during this period. I am sure that this newsletter will be informative and resourceful. The faculty, staff and the students have included all the events that were organized in the college in the last few months. I take this opportunity to congratulate all the devoted hands who worked behind and I wish all the success to "PHARMA ECHO" and hope that this culture of releasing newsletter continues forever.

Best Wishes,
Prof. Dr. Santhosh M. Mathews
Principal

FROM THE EDITOR'S DESK



Dear Readers,
Welcome to the next issue of Pushpagiri College of Pharmacy Newsletter 'PHARMAECHO'. I take this opportunity to sincerely thank my entire team who worked behind to bring this newsletter to the forefront. This issue of the newsletter highlights the overview of articles from faculty, students & alumni, events & activities, various celebrations, webinars & achievements. We are immensely thankful to the management for giving support & encouragement in this endeavor. Our students are continuously coming up with flying colors in curricular, co-curricular and extracurricular activities. The contribution of faculty members in research and academic excellence is worth a mention. PCP in association with NSS unit is organizing various events and seminars for innovation surge and supports minds for the journey of various creative ideas. Last but not the least we are thankful to all the authors who have contributed their articles for this issue of 'PHARMAECHO' especially our fellow alumni members. Any suggestions or criticism on the newsletter would be most welcome.

Wishing you all a happy reading experience.

With Regards,
Julie Mariam Joshua
Chief Editor



ABOUT THE COLLEGE

Pushpagiri College of Pharmacy is one of the member institution of Pushpagiri Medical Society, Thiruvalla. Pushpagiri Medical Society is owned and managed by Catholic Archdiocese of Thiruvalla, Kerala, a Christian Charitable Society registered under the societies act. Pushpagiri Medical Society is pioneers in healthcare in central Kerala providing its services since 1949.

The society is having a 1200 bedded Medical College Hospital, a Dental College, a Pharmacy College, a Nursing College, Centre for Virology, Pushpagiri Research Centre and College of Allied Health Sciences to impart medical education at graduate and post graduate levels.

As a part of providing academic excellence to various academic interfaces, we have collaborations and MoUs with various institutions and universities.

Pushpagiri College of Pharmacy is one of the reputed Pharmacy Colleges in Kerala. It was established in the year 2004.

The college is approved by Pharmacy Council of India, and affiliated to Kerala University of Health Sciences.

We offer B. Pharm M. Pharm, Pharm D, Pharm D (PB) and research programmes. We provide best quality education in Kerala with well-equipped laboratory, research lab, toxicology lab and library. Clinical training is conducted at our super speciality medical college hospital by expert team of clinicians.

We are the first accredited pharmacy institution in Kerala with NAAC 'A' grade. Students from our institution are been placed in reputed hospitals and industries across India and abroad.

INSTITUTIONAL HIGHLIGHTS

- Excellent ambience for teaching, learning, research and extracurricular activities
- RMC for nurturing research (animal house, medicinal garden)
- Nature Club
- Participation in NIRF
- NSS unit
- Placement cell
- Wi-Fi enabled campus, Separate Pharm D block
- Separate hostel facilities for boys and girls within the campus
- Well-established Clinical Pharmacy division in the medical college hospital with NABH and NBA accreditation
- Committed PhD registered faculties



ADMINISTRATION

CHIEF PATRON



**H.G. Most Rev.
Dr. Thomas Mar Koorilos**
METROPOLITAN ARCHBISHOP
OF THIRUVALLA



PUSHPAGIRI
COLLEGE OF PHARMACY



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Director of Institution and Medicity



Prof. Dr. Santhosh M. Mathews
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GASTRORETENTIVE DRUG DELIVERY SYSTEMS AGAINST H. PYLORI

The oral bioavailability of drugs with an absorption window in the upper part of the gastro intestinal tract is generally limited with conventional dosage forms such as tablet, capsules and granules. These drugs can be delivered ideally by slow release from the stomach to give a localized effect at the site of action. Improved efficacy is expected for drugs that are used in the treatment of gastric disorders like ulcers and H. pylori infections. Many drugs categorized as once-a-day delivery have been demonstrated to have suboptimal absorption due to dependence on the transit time of the dosage form, making traditional extended release development challenging. Although H. pylori has been shown to be highly sensitive to a single antimicrobial agent in many antibacterial in vitro trials, in clinical the eradication rate of H. pylori is still low. There are three explanations for this finding: first, many antibiotics are unstable in the low pH of gastric acid; second, the concentration of the drug in the deep gastric mucus where the bacterium lives is too low and third, the amount of time that the antibiotic resides in the stomach is too short. Triple therapies consisting of the combined use of antibiotics are frequently used in the clinical treatment of H. pylori associated with gastroduodenal disease. However, the high level of antibiotic resistance by H. pylori, drug side effects and poor patient compliance are major drawbacks of multidrug therapy. For these reasons, prolonging the gastric residence time of the drug while improving its stability in gastric acid is a logical approach to overcome these issues. Gastroretentive dosage forms are one of the oral site-specific drug delivery systems that have been proposed.

TREATMENT STRATEGIES FOR H. PYLORI

H. pylori is a spiral gram-negative bacterium commonly found in the stomach. H. pylori is well known to also cause several GI diseases, such as peptic ulcers and gastric carcinoma. In some countries, H. pylori infection has been shown to increase the risk of gastric cancer four-fold and even higher. In gastric biopsy specimens, H. pylori bacteria are 2.5-5.0 μm long and 0.5-1.0 μm wide and have four to

six unipolar sheathed flagella. Most H. pylori localize deep in the less acidic region of the gastric mucus layer, which is more hospitable for survival, and do not directly interact with host cells. H. pylori secretes urease, which hydrolyses urea to ammonia and carbonic dioxide. These products can neutralize the acidic environment of the stomach and result in the release of toxins. Although immune cells can normally recognize H. pylori and induce immune responses, H. pylori exert resistance to local immune responses by reducing the recognition of immune sensors and interfering with the uptake of antigens, as well as by other genetic mechanisms. H. pylori is highly adapted to colonize the human stomach, whereas most other bacteria cannot persist in the low pH environment. H. pylori secretes toxins and other effector molecules and stimulates numerous signalling pathways. The primary pathogenic factors of H. pylori are altered local acid homeostasis, disruption of the gastric mucosal barrier, induction of gastric inflammation and resistance to the immune response. Some studies have found that the secretion of vacuolating toxin A and γ -glutamyl transpeptidase both contribute to H. pylori persistence in the gastric niche and to immune tolerance. Recent findings observed abnormalities in the tight junction complexes in patients with H. pylori infections, which indicated that H. pylori infection can increase gastric mucosal permeability and result in disruption of the gastric mucosal barrier.

First-line therapy of treating H. pylori

The recommended H. pylori treatment is a combination therapy with a proton pump inhibitor and two of the following antibiotics for 7, 10 or 14 d: clarithromycin, amoxicillin and metronidazole. Drug resistance is considered the primary reason for the observed ineffectiveness. Currently, sequential therapy and non-bismuth quadruple therapy are the trends in the treatment of H. pylori. Quadruple therapy based on bismuth remains the primary choice for second-line treatment if not used as first-line therapy. Several studies have shown that these novel treatment schedules are superior to triple therapy with regard to antibiotic resistance and the clinical eradication rate. Recently, a "hybrid" therapy that combines sequential and concomitant

therapies has been considered as a novel innovation. Although there is a high rate of eradication of H. pylori in clinical practice, bacterial resistance, side effects and poor patient compliance are major drawbacks of the multidrug therapies. Based on H. pylori pathophysiology and the problems in clinical practice, oral site-specific drug delivery systems that can prolong the residence time at the reaction site are considered to be an ideal strategy. Gastroretentive dosage forms as a novel site-specific system could potentially improve the stability of antibiotics in gastric acid by employing different formulation strategies and allowing the antibiotic to localize to the target site in the stomach by increasing residence time.

GASTRORETENTIVE DRUG DELIVERY SYSTEMS (GRDDS) AGAINST H. PYLORI

Floating systems

Low density/floating systems are the most practical and extensively studied gastro retentive dosage forms. This system is classified into two types; based on the mechanism of buoyancy, non-effervescent floating and effervescent floating systems. This property allows the system to remain buoyant in the stomach for a prolonged period of time.

Non-Effervescent Floating Systems

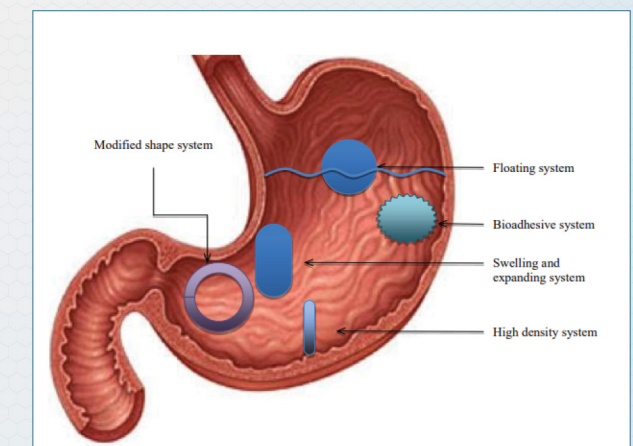
Highly swellable cellulose derivatives or gel-forming polymers are used in non-effervescent systems. The formulation technique involves mixing of drug with a gel forming polymer. Various non-effervescent systems include hydro dynamically balanced systems, micro balloons/microspheres, Alginate beads, layered tablets. Various gelforming hydrophilic polymers such as HPMC, HPC, Sodium CMC, carrageenan, agar, alginic acid etc. are used to design HBS system. In this system, the drug and polymer is mixed and filled in the gelatine capsule. By simple solvent evaporation or solvent diffusion technique, drug-loaded micro balloons/hollow microspheres are formulated. Polycarbonate, cellulose acetate, calcium alginate, Eudragit S, agar are polymers commonly used to design micro balloons. In alginate beads approach, a solution of sodium alginate is dropped into an aqueous solution of calcium chloride and caused the precipitation of calcium alginate. These beads can prolong the GRT for more than 5.5hrs. Effervescent Floating Systems This system includes a gas generating system and volatile liquids. This can be applied for single and multiple-unit systems. Effervescent agents such as sodium bicarbonate, calcium carbonate, tartaric acid, citric acid are used in combination with hydrophilic polymers are used in the gas generating floating systems. When this system comes in contact with gastric fluid, CO₂ is liberated due to the reaction of the effervescent agent with gastric fluid. The liberated CO₂ will provide the tablet buoyancy and influence the drug release properties. This type of floating systems can be classified into

single- and double-layer floating tablets or multiple unit effervescent floating system. Low-Density systems are usually associated with problems such as sticking or being obstructed in the GIT, which can cause gastric irritation. Drugs which cause irritation to gastric mucosa are not suitable candidates for low-density systems.

Non-Floating Systems (High-Density Systems)

Non-floating systems are class of gastro retentive drug delivery systems which do not float but remain in the stomach for a prolonged time period. High-density systems have a density greater than that of gastric fluid.

Bioadhesive / mucoadhesive drug delivery system: These systems are mainly used to enhance the drug absorption in a site-specific control manner on the target site. Various bioadhesive polymers such as poly acrylic acid, chitosan, cholestyramine, sodium alginate, HPMC, Tragacanth, dextrin, polyethylene glycol (PEG), polylactic acids etc. are mainly used for prolongation of the gastric retention on to the epithelial surface in the stomach.



Expandable / Swellable drug delivery systems: A dosage form will survive gastric transit in the stomach if it is bigger than the pyloric sphincter but may cause gastric obstruction. In these systems, carrier such as capsules incorporated into biodegradable polymers compressed systems which extend in the stomach. The swelling is commonly outcome from osmotic absorption of the water. The device regularly decreased in volume and firmness as a result of drug and expanding agents and /erosion of the polymer envelope, enabling its elimination. The major advantages of these systems are the dosage form is small enough to be swallowed and swells in gastric liquids

Over the past two decades, there have been significant advances in the development of gastroretentive drug delivery systems for the treatment of H. pylori infections. The literature has shown that gastroretentive dosage forms are effective at not only prolonging retention time in the stomach but also targeting H. pylori.



MOLNUPIRAVIR IN COVID-19

Molnupiravir

covid-19 antiviral drug

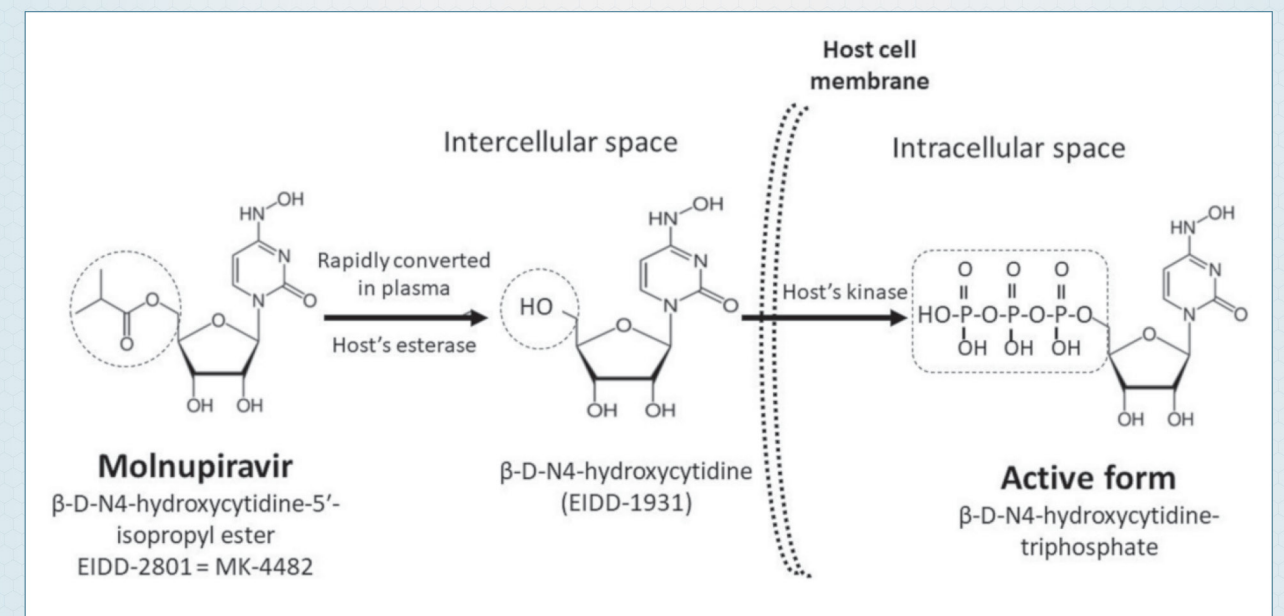


Coronaviruses, single-stranded, positive-sense, and enveloped RNA viruses, are named based on the appearance of a solar corona under an electron microscope and have the ability to cause zoonosis. In addition to severe acute respiratory syndrome coronavirus (SARS-CoV) and Middle East respiratory syndrome coronavirus (MERS-CoV), the third coronavirus, SARS-CoV-2, causing the global pandemic of coronavirus disease 2019 (COVID-19), was first recognized in December 2019 in China.

To date, more than 186 million cases of COVID-19 and 4.0 million deaths have been reported globally. Following major transmission by droplets, clinical manifestations of COVID-19 range widely from asymptomatic infections to life-threatening diseases. Severe COVID-19 is associated with fatality in older patients, immunocompromised individuals, and those with comorbid hypertension, diabetes, malignancies, cardiovascular diseases, or chronic lung diseases.

The development of effective and easily administered anti-SARS-CoV-2 agents is urgently anticipated to reduce viral

load and transmission, disease severity, hospitalization, and even deaths. Antiviral agents under investigation include viral fusion inhibitors, inhibitors of viral RNA-dependent RNA polymerase (RdRp), and inhibitors of viral protein synthesis. RdRp is a preferred target for drug repurposing, because of its specific domain and lack of counterparts in human cells. Notably, the most promising, broad-spectrum class of viral RdRp inhibitors is the analog of nucleoside or nucleotide, including remdesivir, molnupiravir, favipiravir, galidesivir, ribavirin, sofosbuvir, and tenofovir. Of the numerous analogs of nucleoside or nucleotide, the previously established evidence only indicated that remdesivir successfully improves the clinical outcomes of hospitalized patients with COVID-19, with a significantly reduced period to clinical recovery. However, its clinical application appears to have two vast limitations: only focusing on less critically ill patients and administering by the intravenous route. Accordingly, the intent of this report is to provide a detailed overview of molnupiravir, an oral and novel RdRp inhibitor.



What is molnupiravir, and what does it do?

Molnupiravir, an oral and novel RdRp inhibitor was originally developed to treat the flu. Since it is an oral drug, it can be taken at home, whereas other treatments are taken intravenously or injected by a healthcare professional. Molnupiravir was invented at Drug Innovations at Emory (DRIVE), LLC, a not-for-profit biotechnology company wholly owned by Emory University, and is being developed by Merck & Co., Inc. in collaboration with Ridgeback Biotherapeutics. The drug is administered to patients with mild-to-moderate COVID-19 within 5 days of symptoms appearing. Once the virus gets inside the body's cells, it replicates its genome, which is made not of DNA but RNA (ribonucleic acid). These replicated genomes are then formed into complete virus particles which burst out of the cell and continue to spread around the body. However, the molecules of molnupiravir are absorbed by virus-infected cells, where they are converted into a defective version of the building blocks of RNA. So, when the virus tries to replicate, the resulting virus particles have defective genetic material and can no longer reproduce. This means that the viral load should remain low, which reduces the risk of serious disease. Since molnupiravir targets the RNA that SARS-CoV-2 uses as its building blocks, it should be equally effective against all coronavirus variants.

Actual mechanism is by in which Beta-D-N4-hydroxycytidine is an orally bioavailable ribonucleoside analog and has broad-spectrum activity against numerous RNA viruses in animal models. Molnupiravir, β-D-N4-hydroxycytidine-5'-isopropyl ester, is a prodrug of β-D-N4-hydroxycytidine and is rapidly converted into Metabolite in the plasma by the host's esterase. After entering host cells, EIDD-1931 is intracellularly transformed into its active form, β-D-N4-hydroxycytidine-triphosphate, which inhibits viral

replication through its incorporation into the viral genome. Consequently, the accumulation of mutations results in the viral error catastrophe.

Clinical trials

Many tests and studies have been conducted to examine the efficiency of this drug. Initial trials have been conducted with the weasel/ferrets family of animals which gave promising results. Pre-clinical data revealed that the patients who were treated with *Molnupiravir* achieved good response within 5 days of therapy which indicated that the duration of treatment with *Molnupiravir* is smaller, with the additional facility of being an oral therapy. Researchers believe that this drug will be able to treat other viruses as well.

- The drug was deemed to be safe and was well tolerated up to 800 mg twice a day for five days in healthy trial subjects during phase-1 clinical trials attended in the United Kingdom.
- Preliminary findings from a Phase 2a Trial demonstrated that molnupiravir was highly effective at reducing nasopharyngeal SARS-CoV-2 infectious virus and viral RNA, with a favorable safety and tolerability profile.
- An interim analysis of the Phase 3 MOVE-OUT trial showed that molnupiravir reduced the risk of hospitalization or death by approximately 50% in at risk, non-hospitalized adult patients with mild-to-moderate COVID-19. At the interim analysis, 7.3 percent of patients who received molnupiravir were hospitalized through day 29, compared with 14.1 percent of placebo-treated patients who were hospitalized or died.

ALUMNI

Anumol Joseph

Alumini (2010-2014 B Pharm batch)
(CLAIRVOINTS)



SGLT2 Inhibitors (EMPAGLIFLOZIN) in Polycystic Ovarian Syndrome

Polycystic Ovarian Syndrome is a hormonal disorder that affects ovaries in women during childbearing years. This results in irregular menstrual cycle. The condition cannot be attributed to one cause because several factors such as excess of insulin or androgen and heredity play a role. Infrequent, irregular or prolonged menstrual cycles are the most common sign of PCOS. PCOS treatment focuses on managing individual concerns, such as infertility, hirsutism, acne or obesity. Specific treatment might involve lifestyle changes or medication.

► Symptoms

PCOS signs and symptoms are typically more severe in obese females. Common symptoms include:

- Amenorrhoea (missed periods) or irregular periods
- Unwanted hair growth (excessive facial hair)
- Thinning hair on the head
- Acne
- Mood changes
- Sleep problems
- Infertility
- Depression
- Weight gain
- Fatigue

SGLT2 inhibitor

SGLT2 inhibitors, also called gliflozins, are a class of medications that alter essential physiology of the nephron; unlike SGLT1 inhibitors that modulate sodium/glucose channels in the intestinal mucosa. The foremost metabolic effect appears to show that this pharmaceutical class inhibits reabsorption of glucose in the kidney and therefore lower blood sugar. They act by inhibiting sodium-glucose transport protein 2. SGLT2 inhibitors are used in the treatment of type II diabetes mellitus. Apart from blood sugar control, gliflozins have been shown to provide significant cardiovascular benefit in T2DM patients.

Several medications of this class have been approved or are currently under development. In studies on canagliflozin, a

member of this class, the medication was found to enhance blood sugar control as well as reduce body weight and systolic and diastolic blood pressure. Patients with PCOS presents as abnormal menstruation, ovulation disorders and/or hyperandrogenaemia, and often accompanied by insulin resistance and other metabolic abnormalities. Metformin has been clarified as an option in patients with PCOS. However, the clinical responses to metformin are limited and different. Sodium glucose co-transporter 2 (SGLT2) inhibitors are novel drugs for the treatment of type 2 diabetes, with weight loss, reducing insulin resistance and cardiovascular benefits.

Examples include dapagliflozin (Farxiga in US, Forxiga in EU), canagliflozin (Invokana) and empagliflozin (Jardiance). Certain SGLT2 inhibitors have shown to reduce mortality in type 2 diabetes.

► MECHANISM OF ACTION

The sodium-glucose cotransporter 2(SGLT2) is responsible for reabsorbing filtered glucose in the tubular lumen of the kidney. By inhibiting SGLT2 these agents decrease reabsorption of glucose, increase urinary glucose excretion and lower glucose level. Inhibition of SGLT2 also decreases reabsorption of sodium and causes osmotic diuresis.

► PHARMACOKINETICS AND DOSAGE

SGLT2 should be taken before the first meal of the day. All drugs are metabolised mainly by glucuronidation to inactive metabolite. These agents should be avoided in patients with renal dysfunction.

Empagliflozin

Empagliflozin is a C-glycosyl compound consisting of a beta-glucosyl residue having a (4-chloro-3- {4- [(3S)-tetrahydrofuran-3-yloxy] benzyl} phenyl) group at the anomeric centre. A sodium-glucose co-transporter 2 inhibitor used as an adjunct to diet and exercise to improve glycemic control in adults with type 2 diabetes mellitus.

Empagliflozin lowers blood glucose levels by preventing glucose reabsorption in the kidneys, thereby increasing the amount of glucose excreted in the urine. It has

a relatively long duration of action requiring only once-daily dosing. Patients should be monitored closely for signs and symptoms of ketoacidosis regardless of blood glucose level as empagliflozin may precipitate diabetic ketoacidosis in the absence of hyperglycaemia.

Empagliflozin is a sodium-glucose-cotransporter-2 inhibitor that improves cardiovascular risk and promotes weight loss in patients with type-2 diabetes. Polycystic ovary syndrome (PCOS) is associated with obesity and increased cardiovascular risk; therefore, empagliflozin may be of benefit for these women. The study was done to compare the effects of empagliflozin vs metformin on anthropometric and body composition, hormonal and metabolic parameters in women with PCOS. There was a significant improvement in anthropometric parameters and body composition, in overweight and obese women with PCOS after 12 weeks of treatment with empagliflozin compared to metformin, although no changes were seen in hormonal or metabolic parameters.

SGLT2 Inhibitor Empagliflozin Promotes More Weight Loss than Metformin in PCOS

Women with polycystic ovary syndrome (PCOS) and obesity who received the diabetes drug SGLT2 inhibitor empagliflozin lost more weight and had a lower metabolic rate compared with women who received metformin, according to the recent studies. Although no changes were seen in hormonal or metabolic parameters. The study, published in the journal Clinical Endocrinology, found that among women with PCOS and obesity those who received empagliflozin therapy for 12 weeks showed significant improvement in anthropometric parameters (weight, body mass index, hip circumference, waist circumference, and fat mass) and body composition. Empagliflozin is a sodium-glucose-cotransporter-2 inhibitor that promotes weight loss and improves cardiovascular risk in type 2 diabetes patients. PCOS is a hormonal disorder that causes obesity and increases the risk of cardiovascular disease. Therefore, empagliflozin may be of benefit for these women.

CONVOCATION 2021

EVENTS AND ACTIVITIES

Graduation Day – 16th August 2021



Graduation ceremony of PHARM D 2015-21 batch was conducted on 16th August 2021 at Mar Theophilos Annexe Auditorium. Ms. Anamika G (Pharm D Intern) welcomed the gathering with a compendious speech and bouquets were presented to the invited guests. Chief Guest Rev. Fr. Jose Kallumalickal (CEO, Pushpagiri Group of Institutions), Medicity Director Rev. Fr. Aby Vadakkumthala and Principal Prof. Dr. Santhosh M Mathews took part in the event. Rev. Fr. Aby Vadakkumthala (Director, Pushpagiri Medicity) delivered the Presidential address. The event was inaugurated by Rev. Fr. Jose Kallumalickal (CEO, Pushpagiri Group of Institutions) with lamp lighting ceremony. Prof. Dr. Santhosh M Mathews (Principal) felicitated the gathering during the event. The outgoing students were presented with memento and Pharmacist Oath as a token of appreciation. This was followed by Oath taking ceremony for the outgoing batch by Asst. Prof. Dr. Jomin George Joseph (Clinical Preceptor). The programme came to an end with vote of thanks by Ms. Soumya Mariyam Philip (Pharm D Intern).



NEW BATCH INAUGURATION

Inauguration & Orientation of 2021-22 Academic Year



On November 1, 2021, the Mar Theophilos Annexe auditorium hosted the Inauguration and Orientation of the 2021-22 class of B. Pharm and Pharm D students. Prof. Dr. Santhosh M. Mathews, Principal of the institution) delivered an eloquent welcoming address.

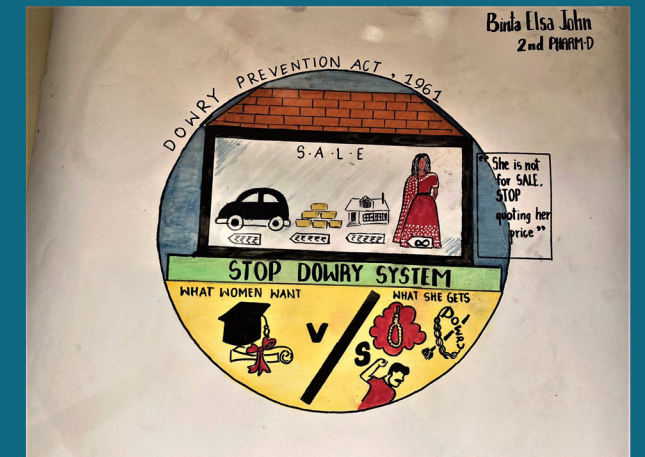
The Presidential address was given by Rev. Fr. Aby Vadakkumthala (Director-Institutions). H.G. Most Rev. Dr. Thomas Mar Koorilos (Metropolitan Archbishop, Archdiocese of Thiruvalla) officially opened the ceremony with a benedictory speech and a lamp lighting ceremony. Ms Julie Mariam Joshua, Chief Editor of News Latter, handed over to Msgr. Rev. Dr. Issac Parappallil (Vicar General Archdiocese of Thiruvalla) with the first copy of the 6th volume of the college newsletter-PHARMA ECHO on this auspicious occasion.

HG Most Rev Dr Thomas Mar Koorilos (Metropolitan Archbishop of thiruvalla) was honoured by Prof Dr Prasanna Kumaran (HOD, Department Of Pharmaceutical Chemistry). A fund raised by the staff and students of the institution was handed over to H.G. Most Rev.Dr. Thomas Mar Koorilos for his episcopal silver jubilee House for houseless scheme. Dr. George Varghese (Principal, Pushpagiri College of Dental Sciences) and Ms. Neha M.K (Second year Pharm D student) felicitated the attendees. As a token of our sincere gratitude, Mementos were presented to H.G. Most Rev. Dr. Thomas Mar Koorilos, Rev.Mgr.Dr. Isaac Parappallil, and Dr. K.George Varghese. Vice Principal Dr. Christy K Jose offered the vote of gratitude. The National Anthem brought the show to a close

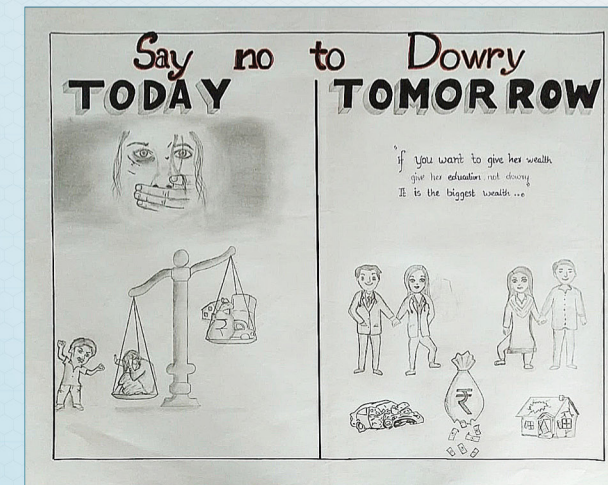
POSTER COMPETITION ON “NO TO DOWRY”

As an initiative to create awareness about domestic violence against women and the anti-dowry system, Dean Student Affairs of Kerala University of Health Sciences conducted a poster competition on the subject «NO TO DOWRY» at Pushpagiri College of Pharmacy on September 8 2021. Students were instructed to prepare posters and M. Pharm, Pharm D, B. Pharm batches participated in the poster competition with great enthusiasm

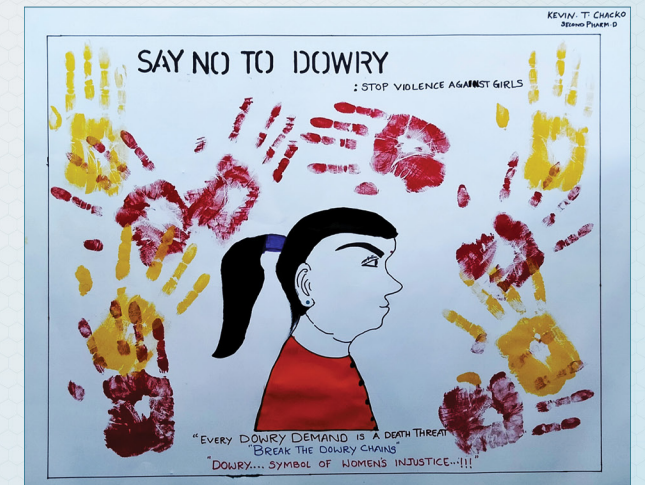
The best three posters from Binta Elsa John (2nd Pharm D), Geena Johnson (2nd Semester B. Pharm) and Kevin T Chacko (2nd Pharm D) were selected.



Binta Elsa John
(Second Year Pharm D)



Kevin T Chacko
(Second Year Pharm D)



Geena Johnson
(Second Semester B. Pharm)

Events @PCP



Farewell to Prof. Girisa Chandran (Professor & HOD, Department of Pharmacognosy) & Mrs. Rynu Tom (Assistant Professor, Department of Pharmacology)



MoU signed between Pushpagiri College of Pharmacy and Logiprompt Techno Solutions India Pvt Ltd for running Academic Software and College Website

Celebrations @ PCP



Onam Celebration

Pushpagiri College of Pharmacy conducted Onam celebration 2021 on August 18, 2021. The program commenced with the Inauguration ceremony by Mrs. Sharmila Sunil, Peringara Panchayat member at 1.45pm in the college auditorium. Rev. Fr. Aby Vadakkumthala, Director, Pushpagiri Group of Institutions delivered the Presidential Address. Several dignitaries honoured the program with



their presence. Around 100 members attended the program. Onam song was performed by the staff. After the Inaugural function various games like Royal Family, Flipping the bottle and Musical chairs were conducted by Dr. Jomin George Joseph. Everyone joined in the celebration by wearing traditional attire. Onasadhya was arranged by the institution as a part of the celebration. The institution gave away gifts to all staff on this auspicious occasion.



Teacher's Day Celebration

Teacher's day is celebrated as a tribute to the valuable contribution made by teachers to the society by imparting knowledge and enlightening and shaping the career of students. In India teachers day is celebrated on 5th of September every year since 1962 as it is the birth anniversary of the timeless teacher and the former president of India - Dr. Sarvepalli Radhakrishnan. On this day, we gratefully remembered the great educationalist Dr. Sarvepalli Radhakrishnan, whose dream was that «Teachers should be the best minds in the country».

Amidst the pandemic, Student's Union, Pushpagini College of Pharmacy. Tiruvalla celebrated this day with great enthusiasm on 6th September, 2021 at 12.00 noon. The whole event was meticulously planned by the Students Union - 2021. The programme was hosted by Mr. Manu. K.

Anil, Chairman, Students Union Our Principal, Dr. Santhosh M Mathews welcomed the gathering and also spoke about the significance of teacher's day. Our Director Rev. Fr. Aby Vadakkumthala inaugurated the function, and in his inaugural address he appreciated the efforts put in by the teachers during this COVID -19 pandemic situation. As the speech concluded, there was a cake cutting ceremony arranged by the Students Union and the chairman Mr. Manu K Anil expressed their sincere gratitude towards all the teachers as a representative of all the Students in the College. Mr Praveen Raj, Associate Professor, St. Joseph's College of Pharmacy and Dr Rahul, Associate Professor, Dr. Joseph Marthoma Institute of Pharmaceutical Science & Research, Kattanam were present during the function. Mr. Nithin Manohar R, Associate Professor, Department of Pharmacy Practice thanked the gatherings and the meeting ended by 01.00 pm.



Pharmacist's Day Celebration

World pharmacist's day was celebrated by Pushpagiri College of Pharmacy, Thiruvalla on 25th September 2021, 11.30 AM at Mar Theophilos Annex Auditorium. The event started with the arrival of Rev. Fr. Jose Kallumalikal (CEO, Pushpagiri Group of Institutions), Rev. Fr. Aby Vadakkumthala (Director, Pushpagiri Group of Institutions), Fr. Varghese Manalel (Spiritual Director), Mr. Shelton Raphel (Mall Manager, Jolly Silks, Thiruvalla) and Mr. Lawrence TC (PRO Jolly Silks, Thiruvalla).

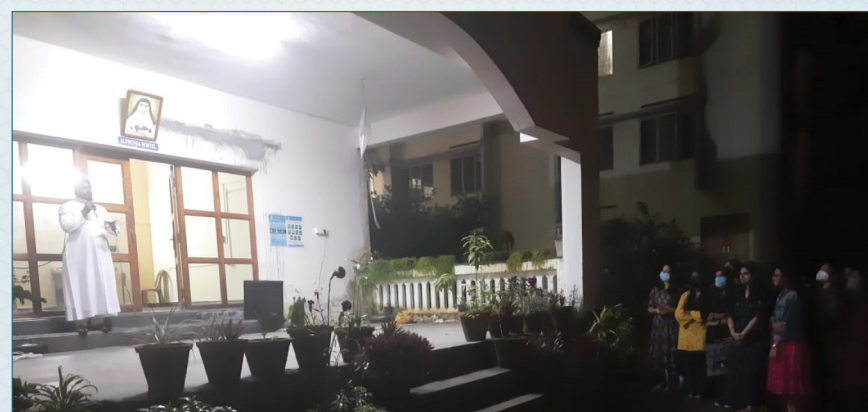
The event began with the introductory speech by Dr. Santhosh M Mathews, Principal, Pushpagiri College of Pharmacy and welcomed all distinguished invitees and participants to this program. The presidential address was given by Rev. Fr. Aby Vadakkumthala, followed by the inaugural address by the chief guest Rev. Fr. Jose Kallumalikal. The Lamp

Lighting ceremony was delightfully done by the dignitaries on the dans

Ms Jino P Thomas, student of first semester M. Pharm, delivered a speech on the theme of pharmacist's day celebration. An honouring ceremony of pharmacists was organized in connection with Jolly Silks, Thiruvalla Mr. Shelton Raphel and Rev. Fr. Aby Vadakkumthala presented a gift of token to registered pharmacists. On behalf of Jolly Silks. Mr Shelton Raphel honored Dr. Santhosh M. Mathews. It was followed by the felicitation address by Dr. Prasannakumaran P N (HOD, Dept. of Pharmaceutical Chemistry). The celebration was concluded with the vote of thanks by Ms. Christeena Mary John (Fourth Semester M Pharm student). The program was attended by around 100 participants including faculty members, non-teaching staffs, hostel wardens and students. The efforts and dedication of Principal. Staff members and students made the event a grand success.

Diwali Celebration

'Diwali' – the festival of lights was celebrated at Alphonsa hostel on November 4th, 2021 at 07.00 pm. Diwali is known as the festival of lights, and depicts the victory of light over darkness, good over evil and so on. The hostel inmates actively participated in beautifying the campus with lights. Diyas were being lit all around the place, in every nook and corner. The place was filled with light, and it looked beautiful in the evening. The hostel was resplendent with lovely Diwali decorations. The celebration started with a welcome address by Mr. Manu K Anil, College Union chairman. Director-Institutions, Rev. Fr. Aby Vadakkumthala conveyed the Diwali message and offered his warm Diwali wishes to the students of Medicity campus. Following which, there was a dance performed by third semester B Pharm and third Pharm D students. The mesmerising dance performance by the students brought forth the festive fervour. Sweets such as peda and gulab jamun were distributed among all. Firecrackers was another entertainment of the event. The day came to an end with lots of joy and happiness.



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Christmas Celebration

The Christmas programme in Pushpagiri College of Pharmacy - Jingle Mingle 2021 was conducted on 22-12-2021. The programme was a joint venture of both the students and staff. Pharm D interns welcomed the gathering by a welcome song (O come, all ye faithful). To formally welcome the gathering, Ashna Susan John (Pharm D intern) were entrusted with the welcome speech. Fr. Aby Vadakkumthala, Director Institutions gave an illuminating Christmas message and inaugurated the events for the evening.

Christmas is the time of cakes and candies, to mark the beginning of Christmas celebrations in the Pushpagiri family, Fr. Aby Vadakkumthala, Director Institutions along with Prof. Dr. Santhosh M Mathews, Principal Pushpagiri College of Pharmacy, shared the happiness by sharing a slice of cake with teaching and non - teaching staff, also with the administrative, housekeeping staff.

M pharm students sung a Christmas song followed by Pharm D interns and teaching staff following this Non-teaching staff, Administrative staff, housekeeping staff entertained the gathering with their Christmas songs.

Afterwards, Pharm D interns amused the gathering with a Christmas choreography performance. Once again Pharm D interns made the evening more christmassy with their Christmas song (silent night, holy night) and wish (Feliz Navidad). To mark an end to the ceremony Jino P Thomas (M. Pharm student) rendered the vote of thanks. In the end to wind - up the programme, a carol was conducted by the students. The programme which began at 2:30 pm ended at 5:00 pm.

Christmas Celebrations @ Pushpagiri Medical College

Pushpagiri Medical Society conducted their Christmas Celebrations along with Pushpagiri day celebrations -Santa Soiree 2021 on 21st December 2021. Cultural programmes began at 3:30 pm with an introductory talk and food fest inauguration by Fr. Thomas Pariyarath (Hospital Administrator).

The event begun with an opening song by Ms. Mayusha (Nurses Department), Ms. Alona and Angel (Nursing Department) graced the audience with their dance. Ms. Mizna and team of Pharmacy Department brought up the joy



of the season by a song. Ms. Nayana Sanjay Varma (Credit Department) glorified the occasion with a dance. Again Ms. Mizna K. Hameed did a tuneful song.

To mark the beginning of the public function, Fr. Thomas Pariyarath (Hospital Administrator) welcomed the gathering with a welcome speech. His Grace Most. Rev. Dr. Thomas Mar Koorilos enlightened the gathering with a Christmas message.

Introduction of the felicitated members were done by Ms. Renuka Devi (Quality Manager). Felicitation was done by His Grace Most. Rev. Dr. Thomas Mar Koorilos to Dr. R.N. Sharma-Emeritus General Medicine Department, Dr. Roy A Kallivayalil - HOD Psychiatry Department, Dr. Rajan Joseph Manjooran - Emeritus Cardio Department, Dr. Mariamma Varghese - Former Principal of School of Nursing, Prakash VR - Radiation Safety Officer respectively.

To bring out the spirit of Christmas, cake gifting and cutting was done by Fr. Jose Kallumalikal (CEO) to His Grace Most. Rev. Dr. Thomas Mar Koorilos. Then a cake auction was conducted to spread the joy of the season.

To indulge in the holiday spirit, the Carol Singing and Santa Claus Competition begun and winners were rewarded with prizes too. Carol team and Santa Claus from Pushpagiri College of Pharmacy bagged the first prize for both the events respectively

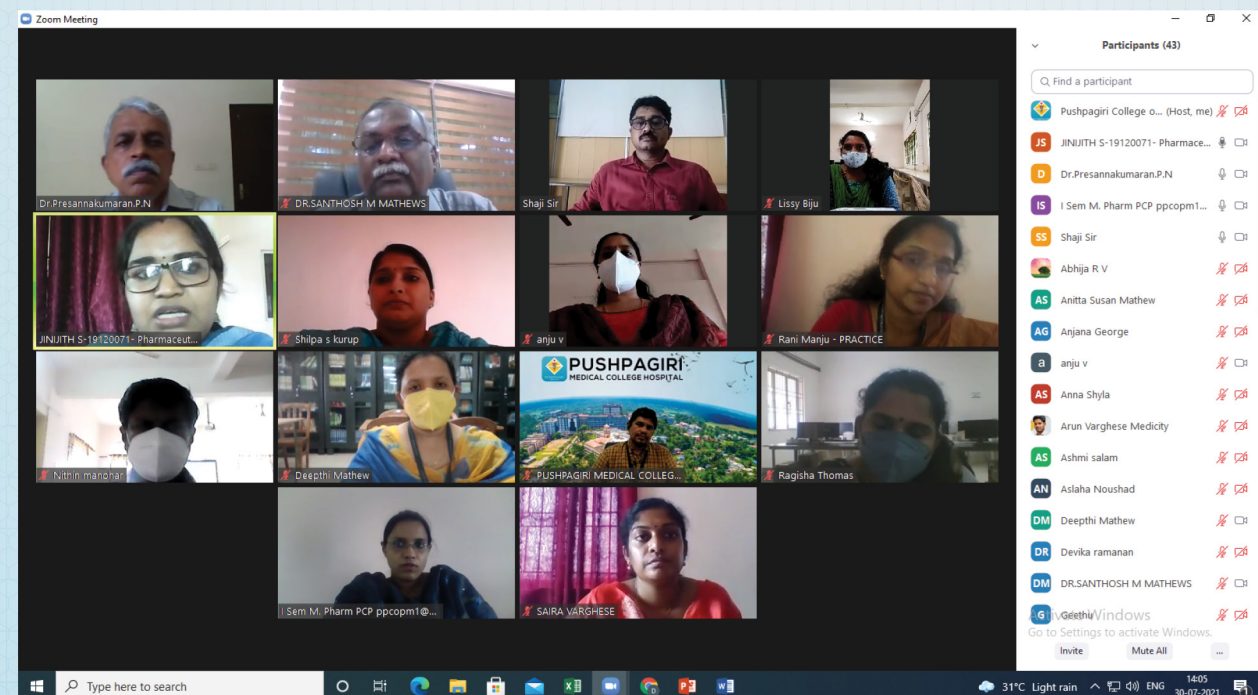
PCP Scientific Series 2021

National Webinar on World Hepatitis Day

A national webinar on «World Hepatitis Day» was organized by Department of Pharmaceutical Chemistry on 30th July 2021, at 02.00pm through online zoom platform. The webinar mainly focused to increase an awareness among the students and also aimed to gain the knowledge about viral Hepatitis and to facilitate its prevention, diagnosis and treatment.

The webinar began with the introductory speech by Organizing Secretary Mrs. Rani Manju, Associate Professor, Department of Pharmacy Practice highlighting the relevance of topic in today's world. Mrs. Jinijith S (co-ordinator), Assistant Professor, Department of Pharmaceutical Chemistry welcomed all distinguished invitees, faculties and students to this webinar.

The webinar was inaugurated by the Chief Guest Mr. Shaji Mathew Kooliyat, Head Master St Thomas HSS, Eruvellipra, Thiruvalla. The speaker of the day, Dr Ramesh M Nair, Associate Professor Department of Gastroenterology, Pushpagiri Medical College Hospital, Thiruvalla conducted a session on different types of Hepatitis, its etiology. Diagnosis, management and prevention. The session was very informative and make the students aware of the importance of World Hepatitis Day. The webinar was attended by M. Pharm students and Pharm D interns, with all the faculties. All actively participated and interacted well with the speaker through their queries.



Resource Person



Dr. Ramesh M. Nair

Associate Professor,
Department of Gastroenterology

Chief Guest



Mr. Shaji Mathew Kooliyat

Head Master
St. Thomas H.S.S., Thiruvalla

Awards and Achievements

YOUNG SCIENTIST AWARD

Mrs. Rajisha Francis, Assistant Professor, Department of Pharmaceutical Chemistry received Young Scientist award for Best Poster Presentation in an International e-conference on Frontline areas in Chemical sciences which was held on 3rd and 4th October 2021 by Pacific Academy of Higher Education and Research University, Udaipur.



Mrs. Rajisha Francis
Assistant Professor

Department of Pharmaceutical
Chemistry



QUIZ WINNER



Mr. Subith Shaji
Final B. Pharm

Mr. Subith Shaji of Final B. Pharm won second prize in the Online Quiz competition conducted on 24th September 2021. The competition was organized by Kerala pharmacy graduate association in connection with world pharmacist day celebrations.

ORAL PRESENTATION AWARD

Mrs. Emily James, Associate Professor, Department of Pharmacology has been presented with the Second Best Oral Presentation Award under the category of Pharmaceutical Care and Patient Education for the topic entitled 'Estimating the Level of Awareness of Rheumatoid Arthritis Patients – A Study in Southern India' in the 2nd International Virtual Conference on Advances in Health Economics and Outcomes Research jointly organized by ISPOR Nitte (Deemed to be University) Student Chapter and Dept. of Pharmacy Practice, NGSM Institute of Pharmaceutical Sciences, Mangaluru, Karnataka, India on 21st and 22nd October 2021.



Mrs. Emily James
Associate Professor

Department of Pharmacology

PHD AWARDED

Mr. Nithin Manohar R, Associate Professor, Department of Pharmacy Practice has been awarded Doctor of Philosophy (PhD) in Pharmacy from the University, Meenakshi Academy of Higher Education and Research - [MAHER], Chennai at the 15th Annual Convocation held on 4th December 2021.



Mr. Nithin Manohar R

Department of Pharmacy Practice



ACADEMIC EXCELLENCE



M. Pharm 2019-21 batch

ACADEMIC EXCELLENCE

At Pushpagiri College of Pharmacy, we value academic excellence, and we want all of our students to reach their full potential. All the M. Pharm (2019-21 batch) students of our college passed their final year examinations with distinctions and also they achieved 16 distinctions and 4 first classes in their IIIrd semester examination. An honouring ceremony was commemorated on the 13th of September, 2021 at Mar Theophilos Annex Auditorium, Pushpagiri College of Pharmacy, Thiruvalla to celebrate the educational achievement of M. Pharm students. The ceremony started at 12:00pm with the welcome address by Mrs. Mincy Mathew (M. Pharm in-charge). Prof Dr. Santhosh M Mathews congratulated all the students for their meritorious achievement and also advised them to maintain the same momentum throughout their studies. Fr. Aby


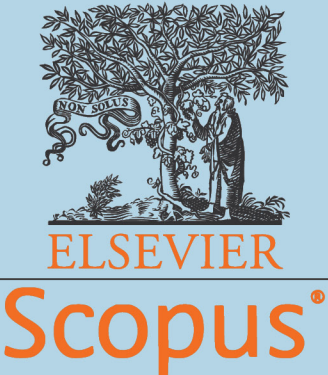
Vadakkumthala (Director, Pushpagiri Group of Institutions) delivered the felicitation address and also appreciated the students for their remarkable results followed by few words of appreciation by Mr. Manu K Anil (Students Union Chairman). All the students were felicitated by the Principal and Director with medals and flowers. A cake cutting was also organized which was followed by sweets distribution by the students.

The VIth Pharm D students (2015-21 batch) also achieved 100% results in their final year examinations. To congratulate them in attaining 100% result in their university exam, a cake cutting ceremony was conducted during the College Christmas programme - Jingle Mingle 2021 which was conducted on 22.12.2021 and shared the happiness with the gathering.



Pharm D 2015-21 batch

ARTICLES INDEXED IN SCOPE DATABASE & SCOPUS

 <p>Scope Database Journal indexing & Citation Analysis</p>	<ol style="list-style-type: none"> 1. Nikil K Mathew et al. A Retrospective Analysis on Treatment Strategies of Neuropathic Pain Management in a Tertiary Care Hospital. WJPPS. 2022, 11(2), 1326-1340. 2. Sonia Alex et al. A Retrospective Study on Prevalence of Respiratory Tract Infections and Antibiotic Appropriateness in Paediatric Population. WJPPS. 2022, 11(1), 1460-1475. 3. Dawn Kurian et al. A Retrospective Study on Prescribing Trends in Cardiovascular Emergencies in a Tertiary Care Hospital. WJPPS. 2022, 11(1), 1521-1531. 4. Achsah S Johns et al. Clinico-Bacteriological Profile and Management of Diabetic Foot Ulcer Infections in a Tertiary Care Hospital. WJPPS. 2022, 11(1), 1476-1490. 5. Sreelekshmi R. A Retrospective Analysis on Etiology, Clinical Manifestations, site Of Involvement, Diagnostic Parameters and Clinical Outcome Associated with Neuropathic Pain in a Tertiary Care Hospital. WJPPS. 2022, 11(1), 1341-1353. 6. Ashna Susan et al. A retrospective study on the risk factors and types of seizures in paediatric epilepsy population in a tertiary care hospital. WJPPS. 2022, 11(1), 1564-1581. 7. Anju A Varghese. Pharmacognostic and phytochemical evaluation of Thespesia Populnea leaves. WJPPS. 2022, 11(2): 1669-1684.
	<ol style="list-style-type: none"> 1. Anu Joseph et al. Chemotherapy-induced neutropenia among breast Cancer patients in a tertiary care hospital: Risk and consequences. Journal of Oncology Pharmacy Practice. January 2022.

LIST OF PROJECTS COMPLETED

1. A Retrospective Study on Clinical Profiles with Special Reference to Etiology, Management and Drug Utilization Review on CVA with Ischemic and Hemorrhagic Stroke.
2. A Retrospective Study on Prevalence of Respiratory Tract Infections and Antibiotic Appropriateness in Paediatric Population.
3. A Retrospective Study on Prescribing Pattern of Antipsychotics in Psychiatric Unit at a Tertiary Care Hospital.
4. Surgical Antimicrobial Prophylaxis and Prevalence of Surgical Site Infections at a Tertiary Care Hospital.
5. Clinico - Bacteriological Profile and Management of Diabetic Foot Ulcer Infections in a Tertiary Care Hospital.
6. A Retrospective Study on Treatment Pattern of Cephalosporins.
7. A Retrospective Study on the Prescribing Pattern and Efficacy Comparison of Anticonvulsants in Paediatric Epilepsy Population in a Tertiary Care Hospital.
8. A Retrospective Study on Prevalence of Thyroid Disorders in Women.
9. Study on Drug Utilization Pattern of Common Skin Diseases in Dermatology OPD of A Tertiary Care Hospital.
10. A Comparative Study Of UTI in Females With And Without Diabetes
11. A Retrospective Study on the Drug Utilization of Antiplatelets and Anticoagulants in Hypertension.
12. A Retrospective Study on Prescribing Trends in Cardiovascular Emergencies in a Tertiary Care Hospital.
13. A Retrospective Analysis of Treatment Strategies of Neuropathic Pain in a Tertiary Care Hospital.
14. A Retrospective Study on Prescribing Trends and Clinical Outcome in Elder Patients with Type 2 Dm.
15. A Retrospective Study on Prescribing Pattern of Anti-Epileptic Drugs in Pregnant Women With Epilepsy in A Tertiary Care Hospital
16. A Retrospective Study on Drug Prescribing Pattern and Management of Osteoarthritis in a Tertiary Care Hospital
17. Analysis on Drug Prescribing Pattern among Geriatric Inpatients at General Medicine Department in a Tertiary Care Teaching Hospital.
18. A Retrospective Analysis of Acute Poisoning and Its Treatment Pattern in a Tertiary Care Hospital.
19. A Retrospective Analysis on Dermatological Diseases and its Treatment in Geriatric Population in a Tertiary Care Hospital
20. A Retrospective Study on Prescribing Patterns in the Management of Osteoporosis in a Tertiary Care Hospital
21. A Retrospective Study on the Clinical Outcomes of Haemodialysis Patients in a Tertiary Care Hospital
22. A Retrospective Study on the Risk Factors and Management of Peptic Ulcer
23. Bacteriological Profile and Antibiotic Treatment Pattern in Pregnant Women with Urinary Tract Infections
24. Evaluation of Anti-Ulcer Activity of Pajanelia longifolia Leaf Extract
25. Evaluation of Antiulcer Activity of Stereospermum tetragonum Root Extract
26. Evaluation of Cardio Protective Activity of Thallium triangular Leaf Extract
27. Evaluation of Hepatoprotective Activity of Salvinia molesta Ethanolic Extract
28. Evaluation of Antidiarrhoeal And Antiulcer Activities of Whole Plant Extract of Naregamia alata in Experimental Rats
29. Evaluation of Antirolithiatic Activity of Vitex negundo Root Extract
30. Evaluation of Anti-Inflammatory Activity of Alcoholic Extract of Rhizome of Curcuma angustifolia Roxb.
31. Design, Synthesis, Characterization and Pharmacological Evaluation of Novel Quinazolin-3(H)4-One Derivatives
32. Design, Synthesis, Characterization and Pharmacological Evaluation of Novel Azomethine Derivatives of Benzimidazole
33. Design, Synthesis, Characterization and Pharmacological Evaluation of Novel 3,5- Thiazolidine-2,4-Dione Derivatives
34. A Retrospective Comparison on the Effectiveness of Angiotensin Receptor Blocker Nephilysin Inhibitor (Arni) with Ace/ Arb Monotherapy in Heart Failure Patients in a Tertiary Care Hospital.

LIST OF ONGOING PROJECTS

1. Antimicrobial susceptibility patterns of gram-negative uropathogens in a tertiary care hospital
2. A retrospective study on the antiplatelet treatment in patients having acute coronary syndrome in a tertiary care hospital
3. Prevalence of Venous Thromboembolism and its treatment pattern in the general population- A Retrospective Analysis
4. A study on prescription pattern of drugs in the Department of Psychiatry in a teaching hospital
5. A retrospective study on prescription pattern in patients undergoing dialysis at a tertiary care hospital
6. A retrospective study on the trends of analgesic utilization in common musculoskeletal disorders in geriatric population
7. A retrospective study to analyze the antibiotic trends in pediatric pneumonia in a tertiary care hospital
8. A retrospective study on prevalence and management of pediatric asthma in a tertiary care hospital
9. A retrospective study on prescribing trends of antihypertensives in chronic kidney disease patients
10. Formulation and Evaluation Of Anti dandruff Shampoo
11. Evaluation of sun protection factor of a cream formulation prepared from herbal extract of juglans regia
12. Design, Evaluation And Comparative Study of Pomegranate Lip balm with Beetroot Lip balm
13. Formulation And Evaluation of Shower Gel-A Rejuvenating Liquid Cleanser
14. Formulation and evaluation of polyherbal antimicrobial dentifrices
15. Formulation and evaluation of herbal antibacterial cold cream
16. Development and evaluation of a polyherbal laxative syrup
17. Phytochemical Screening And Standardization of Kaempferia galanga Leaves
18. An Evaluation of Knowledge, Attitude And Practice Of South Indian Pharmacists Towards Adverse Drug Reaction Reporting
19. Evaluation Of Knowledge ,Aptitude and Practice of Adverse Drug Reaction Of Antibiotic Use Among General Population
20. Prescribing Pattern Of Drugs In Patients with Covid Positive Cardiac Diseases
21. A Study on Antibiotic Therapy For Various Dental Problems of Patients Visiting A Dental College In South Kerala
22. Pharmacognostical Study of Melastoma malabathricum
23. Invitro Evaluation of The Synergistic Anti Inflammatory Activity Of Zingiber Officinale And Asparagus Racemosus Extracts

PLACEMENT PARTNERS



OUR STUDENTS @ FOREIGN UNIVERSITIES





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**Approved by Govt. of Kerala, Pharmacy Council of India and
affiliated to Kerala University of Health Sciences (KUHS)
Accredited by National Assessment and Accreditation Council (NAAC) with "A" Grade**



COURSES OFFERED

**B PHARM, PHARM D, PHARM D (PB)
M PHARM (PHARMACEUTICAL CHEMISTRY)
M PHARM (PHARMACY PRACTICE)
M PHARM (PHARMACOLOGY)**

OUR SPECIALITIES

**Easily accessible by MC Road
Hostel Facility available within the campus
Clinical training @ Pushpagiri Medical College Hospital**