



PUSHPAGIRI

We care God cures

PHARMA ECHO

SPECIAL EDITION

OFFICIAL
PUBLICATION
OF PUSHPAGIRI
COLLEGE OF
PHARMACY

MEDICITY CAMPUS, PERUMTHURUTHY P.O., TIRUVALLA-689 107. Tel.: 0469-2645450, 2645900. Fax: 0469-2645460

Affiliated to KUHS, Thrissur and approved by AICTE and PCI, New Delhi

Vol. 3 Issue. 2
2015 August

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"We care..... God cures....."

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

Vice President



H.E. Rev. Dr. Philipose Mar Stephanos
(Auxiliary Bishop of Tiruvalla)



CEO's MESSAGE

More than five decades, Pushpagiri has an eminent presence in Central Travancore, with trained thousands of skilled health care professionals. I am extremely delighted to know that this Pushpagiri College of Pharmacy, releasing its special edition of Pharma Echo in the forthcoming proudful event. This bulletin is a product of an excellent team work with dedication, determination and discipline. It is a matter of pride that this special edition is releasing during the Pharmacy Practice Learning Module leading by International expatriates from USA. All the very best for this endeavour.

Rev. Dr. Shaji Vazhayil
(Chairman & Chief Executive)



FROM THE DIRECTOR OF ACADEMICS

I am extremely glad to know that Pushpagiri College of Pharmacy, is releasing its special edition of Pharma Echo. I take this opportunity to congratulate all the devoted hands who worked behind this miraculous effort.

Rev. Dr. Mathew Mazhavancheril
Chief Advisor & Director- Academics & Research



FROM THE DIRECTOR

My heart's overwhelming with joy to know that Pushpagiri College of Pharmacy is bringing out the special edition Pharma Echo. For the past one year my hands were there with them to strengthen their effort.. This year Pushpagiri College of Pharmacy is coming out with an International event. All the blessings and wishes to the supporting and dedicated hands behind this.

Rev. Fr. Mathew Vadakkekutt
(Director Medicity)

FROM THE PRINCIPAL'S DESK



I am very contented to share that special edition of Pharma Echo is unveiling during the Pharmacy Practice Module –Advanced Learning Series. This International event is adding glory to the milestones, achieved by Pushpagiri College of Pharmacy. I am thankful to IACP & DST, for supporting us, in organizing this mega event. My heartfelt congratulations and appreciation for the team members for bringing this outstanding edition.

Prof. Dr. Mathew George,
Principal



FROM THE EDITORIAL ADVISORY BOARD

With full of heart I am congratulating editorial team members for imparting their miraculous efforts to bring out this colourful special edition. This special edition reflects the academic, research and social activities involved by our institution. Also it will be awesome, that the launching of this issue takes place during the International Event- Pharmacy Practice Module Advance Learning Series. I take this opportunity to appreciate all who impart the meticulous efforts towards this endeavor.

Prof. Dr. Lincy Joseph, HOD
(Department of Pharmaceutical Chemistry)

FROM THE EDITOR'S DESK

Greetings to All. The journey of Pharma Echo started in the year 2103. It is an immense pleasure and gratitude to present the special edition, through which glitters of the previous editions can be reflected. The milestones achieved by Pushpagiri College of Pharmacy in these years is highly remarkable. It also gives an opportunity to release the special edition during the International Seminar, in association with IACP and DST. We are also thanking the Advisory board, Pushpagiri Medical Society, Management, Principal, Ex-Staff editors, Ex-Student editors, Faculties and students.

COMMON COMBINATION OF ANTIBIOTICS RESULTING IN DEATH

Ms. RANI MANJU, Department of Pharmacy Practice

Drug interaction is a major factor to be considered by the medical professionals during prescribing especially in particular group of patients such as geriatrics, pediatrics, pregnancy and lactation. Irresponsibility of the physicians and pharmacist may result in serious untoward reactions and may cause death. One such common prescription is combination of trimethoprim-sulphamethoxazole with spironolactone in elderly patients.

Spironolactone, a diuretic used to treat heart failure with side effects including hyperkalaemia (raised blood potassium levels), is associated with an increased risk of sudden death when combined with the antibiotic trimethoprim-sulfamethoxazole, according to a study published in the *Canadian Medical Association Journal* on 2 February 2015.

The combination of a widely used heart medication and a commonly prescribed antibiotic seems to more than double

treated with both spironolactone and trimethoprim-sulfamethoxazole or trimethoprim, they can call the prescriber to see if an alternative antibiotic can be prescribed.”

One of the consequences of a high potassium level is getting these irregular heart rhythms that can be quite dangerous and cause sudden deaths.

To test the potential hazards of this drug combination, researchers combined information from several prescriptions and health record databases to track over 206,000 patients aged 66 or older who were treated with spironolactone.

Over a 17-year period, almost 12,000 people died suddenly — 349 of them within 14 days after taking either trimethoprim-sulfamethoxazole or another antibiotic. Most of the patients who died were over age 85.

Trimethoprim-sulfamethoxazole is frequently prescribed for urinary tract infections, both spironolactone and trimethoprim-sulfamethoxazole combinations are individually known to increase blood potassium levels. Heart patients prescribed spironolactone must be closely watched to make sure their potassium levels don't build up and cause irregular heart rhythms. Spironolactone is an old drug that's been around for decades, and has shown to greatly impact older adults with advanced heart failure. It's been well-known within the heart failure community that while spironolactone is a great drug, management and use of the drug has to be carefully monitored.”

Previous research had shown that the combination of spironolactone and trimethoprim-sulfamethoxazole caused a 12-fold increased risk of being hospitalized due to high potassium levels compared to use of the heart medicine with another antibiotic, amoxicillin. The researchers found that the combination increased the risk of sudden death nearly 2.5 times higher than the combination of spironolactone and amoxicillin.

It has also found the evidence of an interaction between spironolactone and the antibiotic ciprofloxacin (brand names Cetraxal, Cipro), which increased by half a person's risk of sudden death. If a heart patient is taking spironolactone, they should be prescribed a different antibiotic if one is needed. Doctors also can limit the length of antibiotic treatment. It is important to make sure that pharmacist and physicians are aware of this interaction. Researchers agreed that doctors should avoid this particular drug combination, especially since it mainly affects vulnerable seniors.

More attention needs to be given to the real risk that trimethoprim-sulfamethoxazole can incite life-threatening hyperkalemia in susceptible individuals and the risks increase when these antibiotics are prescribed with other medications that raise blood potassium, such as spironolactone.



the risk of sudden death in seniors. Spironolactone (brand name Aldactone) is a diuretic widely used in treating heart failure. It protects the heart by blocking a hormone that causes salt and fluid buildup. But taking spironolactone alongside the antibiotic trimethoprim-sulfamethoxazole (brand names Septra, Bactrim) can cause blood potassium to rise to potentially life-threatening levels.

Many people think trimethoprim-sulfamethoxazole [co-trimoxazole] is a fairly innocuous drug with not a lot of side effects. But the trimethoprim, not the sulfamethoxazole cause the quick and clinically significant rise in potassium, which may result in an unrecognized arrhythmic death. However, many medical professionals are not aware of this effect of trimethoprim.

Most people do not need to worry about high potassium levels, the potassium level of patients taking spironolactone is usually monitored by cardiologists to make sure it stays in the appropriate range. However, it is very necessary to bring awareness about a drug interaction which causes dangerously high potassium levels that some physicians and pharmacists may not be aware of. If pharmacists notice that a patient is being

A REPORT ON ONE DAY NATIONAL SEMINAR PHARMABANE

Mrs. Bincy K Chacko, Dept. of Pharmaceutics

A one day National Seminar “PHARMABANE” was organized at Pushpagiri College of Pharmacy, Tiruvalla on March 12th, 2015. The inaugural ceremony started by seeking the blessings of Almighty. Prof. Dr. Mathew George, Principal, Pushpagiri College of Pharmacy welcomed the gathering. Rev. Dr. Shaji Mathews Vazhayil, CEO, Pushpagiri Group of Institutions presided over the function. The seminar was inaugurated by Dr. Ajith Kumar K, Dean (Research), KUHS, Thrissur. Sri.

Soon after the inaugural ceremony, the most awaited programme was held. The famous wild life conversationalist Sri. Vava Suresh performed a live show on snakes and explained their behavior. The delegates were overwhelmed by this great show of the seminar followed by the scientific session continued with the live show of Sri. Vava Suresh. The first scientific sessions was handled by Dr. P. Balakrishna Murthy, Ex-Director, IIBAT, Chennai on the topic **Relevance of Pre-Clinical Safety Studies in Drug Development**. The



Honourable Dignitaries on the stage during *Pharmabane*



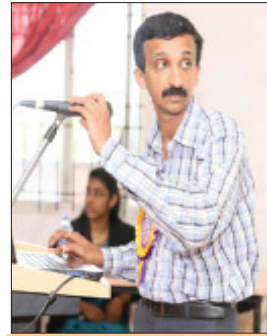
Inauguration Ceremony –Lighting of the Lamp by Dr. Ajith Kumar K, Dean (Research), KUHS, Thrissur during *Pharmabane*

Thampi S Durga Dutt, Deputy Superintendent of Police, Tiruvalla, Rev. Dr. Mathew Mazhavancheril, Director –Research, Pushpagiri Group of Institutions were felicitated during the function. The official news bulletin of Pushpagiri College of Pharmacy “Pharma Echo” (Volume.3 Issue.1) was unveiled during the function. Rev. Fr. Mathew Vadakkekuttu, Medicity Director, delivered Director’s message. The inaugural function concluded with vote of thanks by Prof. Dr. Lincy Joseph, HOD, Pharmaceutical Chemistry. PCP also honoured Shri Vava Suresh, wild life conversationalist by presenting a memento.

scientific sessions were continued after the lunch. Dr. Suresh David, Medical Director, PMCH delivered lecture on the topic **Clinical Toxicological Aspects**. Dr. Girish Thunga, from Manipal University continued the scientific session on the topic, **Role of Pharmacists in Poisoning Information** and scientific sessions ended up by 4.15 pm with valedictory function. Best poster award was presented to Ms. Krishnapriya of Amrita College of Pharmacy, Kochi during the Valedictory function.



Unveiling of PHARMA ECHO during Pharmabane By Sri . Thampi S Durga Dutt , Deputy Superintendent of Police, Tiruvalla



Speakers Dr. Girish Thunga, Manipal University & Dr. P Balakrishna Murthy, Ex-Director, IIBAT, Chennai during the scientific sessions of Pharmabane.



Honouring Dr.Ajith Kumar By Rev. Dr.Mathew Mazhavancheril, Director, (Research) Pushpagiri Group of Institutions



Honouring Sri. Vava Suresh By Rev. Dr. Shaji Mathews Vazhayil, CEO, Pushpagiri Group of Institutions



Live Show & Interactive Session by Sri. Vava Suresh, Wild Life Conversationalist

A REVIEW -TRANSUNGUAL DRUG DELIVERY SYSTEM

Ms. ANJANA M.N*, MS.DEEPTHI MATHEW, Department of Pharmaceutics

ABSTRACT

Transungual drug delivery system is associated with the drug delivery through the hard keratinized nail plate to treat the diseases of nail itself in conditions like onychomycosis and nail psoriasis, this review is focusing mainly on nail lacquers which have been used as cosmetics since a long time for beautification and protection of nails. These can also be used as a drug delivery system. Medicated nail lacquers are the formulations that are used for transungual drug delivery for maximal antifungal efficacy. The film formed after application of nail lacquer on the nail surface acts as a drug depot that permits optimized and sustained diffusion across the nail and leads to continuous penetration of active principle to high tissue concentration required for its efficacy. The present review concluded that the medicated nail lacquers are the efficacious dosage forms for treating nail disorders and also focusing on recent advances in nail delivery.

KEYWORDS: Transungual, Medicated nail lacquers, Onychomycosis.

INTRODUCTION

“Trans” means “through” and “Unguis” means “Nail”, so transungual drug delivery system is nothing but a system associated with drug delivery through the nail to achieve a targeted drug delivery system of the nail to treat diseases of nail itself. The hardness and impermeability of the nail makes it an unpromising route for drug delivery. However improvement in the topical delivery of compounds for the treatment of nail fungal diseases (onychomycosis and nail psoriasis) would reduce the need for systemic administration of drugs with its associated side effects. In addition, it may reduce the length of time required for treatment and help prevent relapse. Medicated nail lacquers are the formulations that are used for transungual drug delivery for maximal antifungal efficacy now days. Onychomycosis (tineaunguium) is a fungal infection of the nail bed or nail plate. It accounts for approximately 50% of all nail diseases and is the most common disorder in adults.

ONYCHOMYCOSIS:

TREATMENT AVAILABLE FOR ONYCHOMYCOSIS

Known methods of treatment fall into three categories:

1. Removal of all or part of the affected nails
2. Oral/systemic therapy
3. Topical/Ungual therapy. **Topical/Ungual therapy** It

is the recent emerging therapy for the treatment of fungal nail diseases.

Advantages

There are so many advantages over oral therapy.

- Ø Preparation is easy compared to oral dosage forms like tablets etc.



- Ø Drug interactions – drug interactions are absent.
- Ø Adverse effects – systemic adverse effects are absent.
- Ø Removal – systemic absorption is less and as it is a topical formulation it can be easily removed when needed.
- Ø Possible improved adherence
- Ø For those who are unable to take systemic medication
- Ø Preferred in elderly patients/patients receiving multiple medications, to avoid drug-drug interactions.
- Ø Multiple classes of antifungal medications have been utilized.

NAIL LACQUERS

Medicated nail lacquers are the formulations that are used for transungual drug delivery system for maximal antifungal efficacy. After application, the solvent from the lacquer formulation evaporates leaving an occlusive film on which the drug concentration is higher than in the original formulation. This increases the diffusion gradient and permeation through dense keratinized nail plate occurs. It has been reported that the film on the nail surface acts as a drug "depot" that permits optimized and sustained diffusion across the nail and leads to continuous penetration of active principle to high tissue concentration required for the efficacy for the treatment of onychomycosis.

Advantages over conventional topical therapy

- It cannot be easily removed by rubbing, washing etc.
- Depot formation.
- In addition, the effect is long lasting. A single application of lacquer provides protection for 1 week.

Disadvantages

- Rash related adverse effects such as periungual erythema and erythema of the proximal nail fold were reported most frequently.
- Other adverse effects which were thought to be casually related include nail disorders such as shape change, irritation, ingrown toe nail and discoloration.

Dosage forms available

Creams, ointments, gels, solutions, lotions, foams, pastes etc are available but present trend is nail lacquers. Currently available nail lacquers are Ciclopirox (penlac 8%) nail lacquer, Amorolfine (loceryl 5%) nail lacquer, Terbinafine hydrochloride (lamisil) nail lacquer.

Recent advances in nail delivery

Apart from the traditional formulations like nail lacquers, nail varnish, and nail patches recent technologies are introduced in the development of more efficient drug delivery. Here some of the recent technologies are listed which open the new horizons for drug delivery to the human nail.

a) Electrochemotherapy for Nail disorders

The goal of this therapy is to develop an active method of drug delivery across the nail plate which in turn is believed to increase the success rate of topical monotherapy and decrease the duration of treatment of nail disorders. Currently, the electrically mediated techniques for drug delivery across the nail plate are investigated. Recently the iontophoretic trans nail delivery method studied. Iontophoresis was found to enhance the transport of drugs across the nail plate significantly. Similar to transdermal iontophoresis, the predominant mechanisms contributing to enhanced transport of drugs in the case of transnail iontophoresis are electrophoresis and electroosmosis. Iontophoretic permselectivity of the human nail plate and its

applicability on the trans nail delivery of drugs are also under investigation.

b) Mesoscissioning technology

Mesoscissioning technology creates a micro conduit through the skin or nail within a specified depth range. Fully open pathways can be painlessly scized (cut) through the stratum corneum of the skin or through the nail. Microconduits, 300-500 microns in diameter, are produced within seconds and without sensation. These pathways can be used to deliver drugs across the skin (proof of concept in vivo human experiments have shown full anaesthesia occurs within 3 minutes through microconduits compared with 1+hour through intact stratum corneum). Such microconduits also permit access for subdermal analyte extraction (including blood for glucose testing). In addition, they reduce the skin electrical impedance to less than 1000 ohms for biopotential measurements. In nails, microconduits quickly reduce the painful pressure of subungual hematoma (black toe) and could serve as a prophylactic to prevent such pressure build up in runner's nails.

c) NanoPatch Nail Fungus

NanoPatch Fungus uses AC/DC electrochemistry and targeted drug delivery to actively push antifungal drugs right through the nail cuticle to the actual location of the fungus growth. This would be the first treatment option to directly target nail fungus at its source of growth.

CONCLUSION

From the above studies, it can be concluded that as the oral therapy is limited by its systemic toxicity, topical therapy especially the medicated nail lacquers can be used as the most effective tool for the transungual drug delivery system especially in the treatment of onychomycosis as its difficulty of penetration is overcome by many strategies. So the nail lacquers seem to be the vehicle of the future when topical products for the nail are desired. And also explains about the recent technologies, which open the new horizons for drug delivery to the human nail.

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REPORT ON NATIONAL SERVICE SCHEME FREE MEDICAL CAMP

Mr. Vinod B, Department of Pharmaceutical Chemistry

The National Service Scheme unit (**No.MP-021-I**) of Pushpagiri College Of Pharmacy, organized a free medical camp on 30th May, 2015 in the college premises itself. The camp was organised from 9:00 am to 2:00 p.m. The inauguration of the camp was done by the honorable MLA of Tiruvalla Adv.Mathew.T.Thomas. Rev.Fr.Mathew Punnakulam, Administrator, Pushpagiri medical college hospital presided over the function. Medicity director, Rev.Fr.Mathew Vadakkekuttu, Principal Dr.Mathew George, and NSS volunteer captain, Amesh.K.Somaraj also spoke on the occasion.

Doctors from six specialties, gynecology, orthopedics, paediatrics, ophthalmology, dermatology and general medicine participated in the camp. A total of 160 patients residing in the villages of Perumthuruthy, Muthoor, Ezhinjillam, and Nalukody, attended the medical camp. Free laboratory check up and dispensing of free medicines also were carried out during the medical camp. The N.S.S unit thanks the Pushpagiri hospital management and staffs, as well the Principal, staffs and students of Pushpagiri College of pharmacy for their guidance, encouragement and immense support for making this medical camp as a huge success.



Honourable Dignitaries on the stage during free medical camp inauguration



Participants registering their names during the Free Medical Camp



Inauguration Ceremony- Lighting of the Lamp by Sri: Mathew T. Thomas, Hon'ble MLA, Tiruvalla

TRAINING PROGRAMME AT JSS UNIVERSITY, OOTY

Pharm D & Pharm D(PB) students along with faculties attended a week's training programme at JSS University, Ooty. The training programme gave an opportunity to in-

teract with students of JSS. The exposure to the district drug distribution ware house, and the procedures followed there was remarkable.



Interaction with the faculties at JSS University, Ooty.....



It was our privilege that the students from JSS College of Pharmacy, Ooty, visited our college. They also visited our college and various departments at medical college hospital and interacted with our physicians, surgeons, faculties and students.

FOOD SAFETY AWARENESS PROGRAMME



On behalf of Food Safety Awareness programme, Pushpagiri college of pharmacy organised a thematic awareness programme on 7th April, 2015 in the college auditorium. Third year Pharm D students hosted the event. By seeking the blessings of God Almighty, the programme commenced at 11.30 am. The student representative Mr. Nevin Sam welcomed the gathering. A presentation on the topic "5 Steps to Food Safety" was made by Ms. Agnus Elsa Francis, followed by a seminar on the topic "Food Safety" by Ms. Ashly Merin Varghese. The awareness programme was enlightened by the short play performed by the third Pharm D students on the topic "Adverse Effects of Pesticides on Human Health". The programme was concluded by the vote of thanks by Prof. Dr. Lincy Joseph, HOD, Pharmaceutical Chemistry.

Gathering During the Food Safety Awareness Programme....



Presentation.....



Skit.....

PUBLICATIONS

1. Lincy Joseph, Mathew George, Robert Mathew, Jancy Kuruvilla: Indian Journal of Hospital Pharmacy, A prospective study to analyse the drug utilization pattern in patients with dementia in a Tertiary Care Hospital ,51(2014)83-85
2. Leena P.N: African Journal of Pharmacy and Pharmacology, Estimation of total phenolic and flavanoid content in Clerodendron particulatum Linn root, June 2015, Vol.9, No:24.
4. Leena P N , Surekha S R : International Journal of Institutional Pharmacy and Life Sciences, Comparative antibacterial activities of Clerodendron infortunatum and Clerodendron paniculatum Linn root, July-August 2015, Vol.5, Issue -5
5. Jyothilakshmi V Nair: Archives of Dermatological Research, Microemulsion loaded hydrogel formulation of Butenafine HCl for improved topical delivery, May 2015
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7. Naina Sara Sabu : Asian Journal of Pharmaceutical and Clinical Research ,Evaluation of anxiolytic activity of aerial parts of Sarcostigma Kleinii, February 2015 ,Vol.8, Issue-2
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INAUGURATION AND ORIENTATION CEREMONY OF 4th BATCH PHARM D

On 22nd July, 2015 by 09:00 AM, the fourth batch Pharm D students and their parents were warmly welcomed by Pushpagiri College of Pharmacy, Tiruvalla. The inaugural and orientation ceremony was started by 10:00 AM. Prof. Dr. Mathew George, Principal, Pushpagiri College of Pharmacy welcomed the honourable guests and the gathering. Rev. Dr. Shaji Mathews Vazhayil, Chairman and CE, Pushpagiri group of institutions presided the function. The inaugural address was delivered by the Chief Guest Dr. H. G. Shivakumar, Member of Pharmacy Council of India, New Delhi, Principal, JSS College of Pharmacy, JSS University, Mysore. Rev. Dr. Mathew Mazhavancheril, Director- Academics & Research, Pushpagiri Group of Institutions, delivered message to the gathering. The unveiling of Academic calendar 2015-16 was done by the Chief Guest Dr. H. G. Shivakumar and Rev. Dr. Mathew Mazhavancheril together. Rev. Fr. Mathew Vadakkekutt Medicity Director also felicitated during the event. Ms. Janaki M of IInd year Pharm D proposed the vote of thanks.



FIXING OF POTRAITS OF MEMORABLE EVENTS AT COLLEGE PREMISE BY REV. DR. SHAJI MATHEWS VAZHAYIL, CHAIRMAN & CE, PUSHPAGIRI GROUP OF INSTITUTIONS AND REV. DR. MATHEW MAZHAVANCHERIL, DIRECTOR-ACADEMICS & RESEARCH, PUSHPAGIRI GROUP OF INSTITUTIONS.



INAUGURAL ADDRESS BY HONOURABLE CHIEF GUEST – DR. H. G. SHIVAKUMAR



LIGHTING OF LAMP CEREMONY



UNVEILING OF THE ACADEMIC CALENDAR 2015-16



HONOURING THE CHIEF GUEST DR. H. G. SHIVAKUMAR BY REV. DR. SHAJI MATHEWS VAZHAYIL

WORLD ENVIRONMENT DAY CELEBRATIONS 2015



During the planting ceremony.....

GREEN TEA- A NATURAL REMEDY FOR NEURODEGENERATIVE DISORDERS

Ms.Sreelakshmi R , Department of Pharmacology

Green tea is a product made from the *Camellia sinensis* plant. Green tea is particularly rich in health-promoting flavonoids (which account for 30% of the dry weight of a leaf), including catechins and their derivatives. The most abundant catechin in green tea is epigallocatechin-3-gallate (EGCG), which is thought to play a pivotal role in the green tea's anticancer and antioxidant effects. Catechins should be considered right alongside of the better-known antioxidants like vitamins E and C as potent free radical scavengers and health-supportive for this reason.

Alzheimer's and Parkinson disease

A degenerative disorder that progressively attacks the central nervous system, Parkinson's disease eventually results from the loss of dopamine-producing cells in the brain. A study published in *Biological Psychiatry* (Elsevier) explored a possible treatment for the disease using green tea. Lead researcher Dr. Baolu Zhao and his team discovered that "green tea polyphenols protect dopamine neurons that increases with the amount consumed." Additionally, they also show that this protective effect is mediated by inhibition of the ROS-NO pathway, a pathway that may contribute to cell death in Parkinson's. Antioxidants in green tea help prevent against cell damage in the brain, which could cause Parkinson's, and thus prevent it. Parkinson's disease is a progressive, degenerative disorder of the central nervous system, resulting from the loss of dopamine-producing brain cells, and there is presently no cure. Certain researchers have indicated that green tea possesses neuroprotective effects, suggesting its role in the prevention of Parkinson's disease. The authors discovered that green tea polyphenols protect dopamine neurons, which increases with the amount of green tea consumed. They also stated that this protective effect is mediated by inhibition of the ROS-NO pathway, a pathway that may contribute to cell death in Parkinson's.

Several studies in animal and cell culture models suggest that EGCG from green tea may affect several potential targets associated with Alzheimer's disease progression. EGCG protects against beta-amyloid induced neurotoxicity in cultured hippocampal neurons, an effect attributed to its antioxidant properties. EGCG and other green tea catechins have also been shown to inhibit the beta secretase enzyme that is responsible for processing sAPP to beta-amyloid, thus having a potentially synergistic inhibitory effect on the production of beta-amyloid.

EGCG decreases production of beta-amyloid, a protein that forms the plaques that clog the brains of



Alzheimer's victims. The primary target for treatment of Alzheimer's disease is inhibition of enzyme acetylcholinesterase and β -amyloidosis. In an *in vitro* study, it was found that green tea inhibited human acetylcholinesterase, with an IC_{50} value of 0.03 mg/ml and, at an assay concentration of 0.03 mg/ml, inhibited β -secretase by 38%. These findings suggest that tea infusion contains biologically active principles, perhaps acting synergistically, that may be used to retard the progression of disease assuming that these principles reach the brain. "Interestingly, green tea protects the brain from the damaging effects of not only Parkinson's but Alzheimer's disease as well."

Other health benefits of green tea:

1. Combats Allergies

Green tea may need to be added to your allergy season arsenal. Drinking the green liquid may provide some relief, as it's been proven to be anti-allergenic; a specific compound epigallocatechin gallate (EGCG), appears to be the most potent.

A 2007 study published in the journal *Cytotechnology* found the tea polyphenol can reduce pollen allergies. This is the first time a methylated form of EGCG can block the IgE receptor — the key receptor involved in an allergic response. It can elicit a stronger anti-allergenic response than normal EGCG, which makes it the strongest anti-allergen compound found in tea. Quercetin, a naturally occurring flavonol in tea, can also alleviate a histamine response.

2. Boosts Eyesight

The antioxidants found in green tea can actually penetrate the tissues of the eyes and produce antioxidant activity. Catechins, an antioxidant in green tea, are capable of being absorbed into the tissues of the eye.

A 2001 study published in the journal *Experimental Eye Research* found green tea can actually prevent cataract-induced blindness. Researchers saw different parts of the eye absorbed varying amounts of catechins, with the highest

concentration of this antioxidant found in the retina of lab rats fed green tea extract. The area with the least absorption of catechins was the cornea. These findings suggest that drinking green tea could serve as a protective measure when it comes to eyesight, but its effects have yet to be confirmed in humans.

3. Lowers Cholesterol

The access to greasy foods puts your health at risk for heart-related complications like high cholesterol. Replacing unhealthy snacks and drinks with green tea could actually help keep your cholesterol levels at bay. Green tea's powerful antioxidant, EGCG, is believed to inhibit the absorption of cholesterol from the large intestine.

A 2011 study published in *The American Journal of Clinical Nutrition* found green tea consumption significantly lowered the total serum cholesterol and LDL cholesterol across 14 randomized controlled trials of over 1100 participants.



Overall, green tea intake led to significant reductions in total cholesterol — 7.2mg/dL, and mean low-density lipoprotein (LDL) cholesterol (2.19 mg/dL). Research suggests drinking five cups of green tea per day will provide the biggest reduction in cholesterol.

4. Promotes Healthy Gums and Teeth

Drinking tea has been given a bad reputation for its staining effect on your teeth. The hot beverage contains tannic acid, which is what gives tea its dark-like color. However, the consumption of green tea can actually be beneficial when it comes to your oral health.

A 2009 study published in the *Journal of Periodontology* found the intake of green tea was inversely correlated with periodontal disease. Regularly drinking green tea reduced symptoms of periodontal disease, possibly due to the presence of catechin. Catechin reduces inflammation in the body, and therefore, interferes with the body's inflammatory response to periodontal bacteria. Its ability to control bacte-

ria and lower the acidity of saliva and dental plaque makes it useful for preventing cavities and other indicators of poor oral health.

5. Wards off Oral Cancer

Green tea has been known to target pancreatic cancer, and most recently oral cancer. Its strongest antioxidant, EGCG, is able to help kill cancer cells through destruction of the cells' mitochondria, and may even become a possible alternative to the debilitating chemotherapy. Green tea consumption is believed to not be associated with any of chemo's side effects, according to a recent study published in the journal *Molecular Nutrition & Food Research*.

"It looks like EGCG causes the formation of reactive oxygen species in cancer cells, which damages the mitochondria, and the mitochondria responds by making more reactive oxygen species," Joshua Lambert, associate professor of food science at Penn State, in a press release. Eventually, the mitochondria loses its defenses with a breakdown in the expression of antioxidant genes. It is in this weakened state the cancer cells succumb to EGCG and die.

6. UV Protection

You may want to add a packet of green tea in addition to sunscreen and sunglasses when you visit the beach. The catechins in green tea can actually make the skin more resistant to the effects of UV rays and therefore premature skin aging. They can also lead to reduced skin redness after UV exposure.

A 2013 study published in the *British Journal of Nutrition* found a relatively low dose (540 mg) of green tea catechins each day along with 50 mg of vitamin C for 12 weeks, or two cups of green tea can considerably reduce the effect of UV radiation on the skin. When UV exposure produced inflammation, green tea supplementation reduced that effect. This is the first time oral doses of green tea has been proven to make their way to skin tissues to limit the effects of the sun's ultraviolet rays.

A cup of green tea a day, may actually keep the doctor away

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INAUGURATION OF DRUG INFORMATION CENTRE & PATIENT COUNSELLING CENTRE AT PUSHPAGIRI MEDICAL COLLEGE HOSPITAL.



The inaugural ceremony of DIC & PCC was conducted on 22nd January 2013 at PMCH, Tiruvalla. Rev. Dr. Abraham Mulamoottil, Chairman & CE of Pushpagiri group of Institutions, inaugurated the event. Rev. Dr. Mathew Mazhavancheril, Academic & Research Director, Rev. Fr. John Thomas Kandathinkal, Medicity director, Prof. Dr. Mathew George, Principal, Pushpagiri College of Pharmacy, faculties, physicians, students were present during the function.

INAUGURATION OF FIRST BATCH OF PHARM D



The first batch of Pharm D was inaugurated on 18th September 2012, by Prof. Dr. T. K. Ravi, Principal, Sri Rama Krishna College of Pharmacy, Coimbatore. Rev. Dr. Abraham Mulamoottil, Chairman & CE of Pushpagiri group of Institutions, Rev. Dr. Mathew Mazhavancheril, Academic & Research Director, Rev. Fr. John Thomas Kandathinkal, Medicity director and Prof. Dr. Mathew George, Principal, Pushpagiri College of Pharmacy, presided over the function.

NATIONAL SEMINAR PHARMARADIANCE 2012



INAUGURATION OF NATIONAL SEMINAR PHARMARADIANCE 2012 BY CHIEF WHIP SRI. P.C. GEORGE

The first National Seminar was held on November 28, 2012 on the topic "MEDICAL NEGLIGENCE AND EMERGING TRENDS IN PHARMA BIO-RESEARCH". The lighting ceremony of the event was done by Sri P.C. George, Govt. Chief Whip. Prof. Dr. Ravindranath Shanbhag, Professor and Former Head of MCOPS, Manipal University, Prof. Dr. Krishna Murthy Bhatt, Professor & Head, Department of Pharmaceutical quality Assurance, MCOPS, Prof. Dr. Varughese George, Director, Amity Institute of Photochemistry and Phytomedicine, Thiruvananthapuram, Sri. K. C. Ajith Kumar, President, KSPC, shared their experiences and views during each scientific session. The valedictory function was addressed by Sri. Anoop Jacob, Honorable Minister for Civil Supplies. The first Volume of Pharma Echo was released during the ceremony.



UNVEILING OF FIRST VOLUME OF PHARMA ECHO DURING NATIONAL SEMINAR PHARMARADIANCE 2012 BY SRI. ANOOP JACOB, HON'BLE MINISTER FOR CIVIL SUPPLIES.



EMINENT SPEAKERS DURING THE NATIONAL SEMINAR PHARMARADIANCE 2012

CARPEDIUM -2013

The college day celebrations CARPEDIUM 2013 were officially inaugurated by Prof. D. Chakraborty, PCI Vice President, on 23rd April 2013. The release of college magazine ADURO -2013 was done by the PCI Vice President. Rev. Fr. Mathew Punnakulam, Hospital Administrator Rev. Dr. Mathew Mazhavancheril, Director-Academics and Research, Rev. Fr. John Thomas Kandathinkal, Medicity Director, Prof. Dr. Mathew George, Principal, Pushpagiri College of Pharmacy, were felicitated during the event.



INAUGURATION OF COLLEGE DAY 2013 – CARPEDIUM BY PROF. D. CHAKRABORTY, VICE-PRESIDENT, PHARMACY COUNCIL OF INDIA, NEW DELHI.



RELEASE OF COLLEGE MAGAZINE ADURO-2013 BY PROF. D. CHAKRABORTY

CONGRATULATIONS.....



MS. RAINA GRACE JOHN (2008-2013 BATCH), BAGGED THIRD RANK DURING M.G UNIVERSITY EXAMS



THE SECOND BATCH OF PHARM D WAS INAUGURATED BY SRI. B. RAJAN, PRESIDENT, KERALA STATE PHARMACY COUNCIL. DR. N. UDUPPA, DIRECTOR AND PRINCIPAL OF MANIPAL COLLEGE OF PHARMACEUTICAL SCIENCES, WAS THE CHIEF GUEST DURING THE EVENT. REV. DR. SHAJI MATHEWS VAZHAYIL, CHAIRMAN & CE, PUSHPAGIRI GROUP OF INSTITUTIONS, REV. DR. MATHEW MAZHAVANCHERIL, DIRECTOR- ACADEMICS AND RESEARCH, REV. FR. JOHN THOMAS KANDATHINKAL, MEDICITY DIRECTOR, PROF. DR. MATHEW GEORGE, PRINCIPAL ADDRESSED DURING THE INAUGURAL FUNCTION.

HONOUR TO OUR PRINCIPAL – PROF. DR. MATHEW GEORGE



Distinguished Alumni award of Manipal College of Pharmaceutical sciences, Manipal University 2013 has been conferred upon Prof. Dr. Mathew George –Principal, Pushpagiri College of Pharmacy. The award is conferred by Manipal University Vice- Chancellor Dr. K. Ramanarayanan in presence of Dr. P Laxmi Narayana Rao, Registrar- Manipal University, Dr. M.N.A.Rao, General Manager Divis Laboratory Hyderabad., which was held at Fortune Inn Valley View Hotel, Manipal.



The B-Pharm tenth batch was inaugurated by Mrs. Delsy Sam, Chairperson, Tiruvalla Municipality on 21st August 2013. The presence of His Grace Most Rev. Dr. Thomas Mar Koorilos Metropolitan Archbishop, Catholic Archdioceses of Tiruvalla made more auspicious. Rev. Fr. John Thomas Kandathinkal, Medicity Director, Rev. Dr. Mathew Mazhavancheril, Director –Academics & Research, Pushpagiri group of Institutions, Prof. Dr. Mathew George, Principal Pushpagiri College of Pharmacy, were felicitated during the event.

INAUGURATION OF NATIONAL PHARMACY WEEK CELEBRATION PHARMABLISS – 2013

The 52nd National Pharmacy Week Celebrations 2013, was celebrated on 11th and 12th November, 2013 .A road safety awareness programme led by Mr. Jiji George, Joint RTO, Tiruvalla and his team was held. The inauguration ceremony started with the blessings of His Grace Rev. Dr. Thomas Mar Koorilose. The chief guest Sri. RishiRaj Singh, IPS, State Transport Commissioner, Guest of Honour Mr. Radhakrishnan Nair, Registrar, KSPC, Rev. Dr. Shaji Vazhayil, Chairman & CE of Pushpagiri Group of Institutions, Mr. Abbey John, RTO, Pathanamthitta, Mr. Jiji George Joint RTO, Tiruvalla and Dr. Mathew George, Principal, Pushpagiri College of Pharmacy were present for the inaugural ceremony. The second day of the pharmacy week celebrations opened with the blood donation camp, which was officially inaugurated by Sri. P.C. Vishnunath, Honourable MLA of Chegannur. Dr. V. Padmaja, member, KSPC presented a general talk on topic "Proud to be a Pharmacist".



UNVEILING THE DRUG FORMULARY, PREPARED BY PUSHPAGIRI COLLEGE OF PHARMACY BY SRI RISHI RAJ SINGH IPS, (STATE ROAD TRANSPORT COMMISSIONER)



ROAD SAFETY AWARENESS PROGRAMME BY MR. JIJI GEORGE, JOINT RTO, TIRUVALLA



INAUGURATION OF BLOOD DONATION CAMP BY SRI. P.C VISHNUNATH, HONOURABLE MLA OF CHEGANNUR.

NATIONAL SEMINAR PCP PATENTUM -2013

Two day National Seminar jointly organized by KSCSTE, Thiruvananthapuram was held at Pushpagiri College of Pharmacy, on 27th and 28th November, 2013. Prof. Dr. Mathew George, Principal, Pushpagiri College of Pharmacy, welcomed the distinguished guests and the gathering. Rev. Dr. Shaji Mathews Vazhayil, Chairman & CE, Pushpagiri

Group of Institutions presided the function. Dr. P.K. Sudhir, Controller of Examinations, Kerala University of Health Sciences, Thirssur addressed the gathering about the relevance of Intellectual Property Rights. Sri. Dharma Raj, Judge Family Court, Tiruvalla focused on the importance of laws that exists, which can be utilized successfully in protecting one's inventions. The seminar was tradiaonally inaugurated by lighting the lamp. Rev. Dr. Mathew Mazhavancheril, Director- Academics & Research, Pushpagiri Group of Institutions and Rev. Fr. John Thomas Kandathinkal, Medicity Director, was felicitated during the function. Dr. Rajaneesh Sharma, IP Attorney, New Delhi, Dr. Jeena Joseph, Project Scientist, KSCSTE, Thiruvananthapuram, Mr. Ajith, Asst. Controller of Patents and Designs, Patent Office, Chennai, Mr. Abhinav Saxena were the keynote speakers. Ms. Maya.S (M.G. University, Kottayam) won the best poster award.



INAGURATION OF TWO DAY NATIONAL SEMINAR *PCP PATENTUM* - 2013



UNVEILING OF ACADEMIC CALENDAR BY DR.P.K. SUDHIR



VALEDICTORY FUNCTION-INAUGURAL SPEECH BY THE CHIEF GUEST PROF.DR.VARGHESE GEORGE, CHAIRMAN, PLANTATION COOPERATION OF KERALA

SUMMER TRAINING PROGRAMME



From June 30th to July 5th, 2014, a student exchange programme along with summer training programme was held at Manipal College of Pharmaceutical Sciences, Manipal. The faculties and the Pharm D students were participated in this event.

NATIONAL SEMINAR-WORKSHOP ,JOINTLY ORGANISED BY DST, GOVERNMENT OF INDIA, NEW DELHI ON 30TH APRIL, 2014



Pushpagiri College of Pharmacy hosted one day National Seminar on “Pre Clinical Animal Models, Advanced Drug Synthesis and Evaluation Techniques”, followed by a Workshop Demo by AD Instruments and Orchid Scietifics on 30th April 2014. The National Seminar was traditionally inaugurated by Dr. C. Retnakaran ,Pro- vice Chancellor, Kerala University of Health Sciences, Thrissur. Prof. Dr. Mathew George, Principal, Pushpagiri College of Pharmacy, welcomed the dignitaries and delegates. Rev. Fr. Mathew Punnakulam , Hospital Administrator, presided over the function. Rev. Fr. John Thomas Kandathinkal, Medicity Director felicitated during the function. Prof. Dr. N. Gopalankutty, Department

of Pharmacology, MCOPS, Manipal, Prof. Dr. K.K. Srinivasan, HOD, SMVITM, Bantakal, Karnataka, was the keynote speakers. Dr. Suseem , Department of Pharmaceutical Sciences, Vellore , won the best poster award.

POSTER EVALUATION DURING THE NATIONAL SEMINAR



POSTER EVALUATION DURING THE NATIONAL SEMINAR

RENDEZVOUS '14- COLLEGE DAY CUM ALUMNI MEET

Rendezvous 2014 - to gather, to relish and to connect with Pushpagiri College of Pharmacy was conducted on 24th May 2014. It was inaugurated by Sri. Jayaraj Warriar, Caricaturist, Film, Television and Stage Artist. The presidential address was delivered by Rev. Dr. Shaji Mathews Vazhayil, Chairman & CE, Pushpagiri Group of Institutions. Sri. Sarath Swami, the Television artist felicitated during the function. The Alumni Meet was also held during the function compiling the nine batches of students. Prof. Dr. Mathew George, Principal, Pushpagiri College of Pharmacy, Rev. Fr. Mathew Vadakkekuttu, Medicity Director were present during the event.



INAUGURATION CEREMONY OF RENDEZVOUS 2014



INAUGURATION & BLESSING CEREMONY OF TOXICOLOGY LAB



INAUGURATION OF PHARMACEUTICAL RESEARCH LAB



INAUGURATION CEREMONY OF PHARM D - THIRD BATCH

The inauguration ceremony of third batch Pharm D was held on 30th July 2014. Prof. Dr. Mathew George, Principal, Pushpagiri College of Pharmacy welcomed the gathering. Rev. Dr. Shaji Mathews Vazhayil, Chairman & CE presided the event. Prof. Dr. S. P. Dhanabal, JSS College of Pharmacy, JSS University, Ooty, delivered the inaugural address. Benedictory speech was delivered by Rev.

Fr. Pradeep Mammen Vazhatharamalayil, Principal, MACFAST. Rev. Dr. Mathew Mazhavancheril, Director-Academics & Research, Rev. Fr. Mathew Vadakkekuttu, Medicity Director, felicitated during the function.

CONGRATULATIONS ...



Ms. Anila K Alexander (2009- 2013 Batch), secured second rank during MG University Examinations

LAUNCHING OF CLINICAL TOXICOLOGY LABORATORY AND PHARMACEUTICAL RESEARCH LAB

Pushpagiri College of Pharmacy has always imparts its thirst towards research activities. The outcome of this ends up the set up of a pharmaceutical research laboratory. Also Pushpagiri College of Pharmacy holds a Clinical toxicology laboratory, first laboratory at Central Travancore. The Pharmaceutical research laboratory was inaugurated and blessed by Rev. Dr. Mathew Mazhavancheril, Director- Academics & Research, Rev. John Thomas Kandathinkal-Medicity Director. The Clinical toxicology laboratory was inaugurated and blessed by Rev. Dr. Shaji Mathews Vazhayil, Chairman & CE, Pushpagiri group of Institutions, Rev. Fr. Mathew Vadakekkuttu, Medicity Director.



INAUGURATION CEREMONY OF PHARM D

INTERNATIONAL HUMAN RIGHTS DAY 2014



Pushpagiri College of Pharmacy organized International Human Rights Day . Honourable Justice Sri. J B Koshy , inaugurated the function. Prof. Dr. Mathew George , Principal welcomed the gathering . Rev. Fr. Mathew Vadakkekutt, Medicity Director, felicitated during the event. The students of PCP got an opportunity to interact with the honourable justice.

HONOURING CEREMONY FOR THE KERALA STATE BEST PHARMACIST



Receiving Kerala State Pharmacy Council's Best teacher Pharmacist's Award from Sri. Manjalamkuzhi Ali , Honourable Minister and Sri. K. Muralidharan , MLA

RUN KERALA RUN 2015

On behalf of National Games, Pushpagiri College of Pharmacy, hosted 'Run Kerala Run 2015' in association with Malayala Manorama. Sri. Sam Eappen, Peringara Grama Panchayath President flagged off the event.. Prof. Dr. Mathew George, Principal, Pushpagiri College of Pharmacy, Rev. Fr. Mathew Vadakkekutt, Medicity Director, Staff and students actively participated in the event and made it a grand success.



Flag off Ceremony during Run Kerala Run – 2015

PHARMACIST'S DAY CELEBRATIONS – 2014

The Pharmacist's day celebration and the honouring ceremony for the Kerala State Best Pharmacist 2014 were conducted on 26th September, 2014. Prof. Dr. Lincy Joseph, HOD, Department of Pharmaceutical chemistry, welcomed the gathering. Rev. Fr. Mathew Vadakkekuttu, Medicity Director, preside over the function. The Chief Guest Sri. K.J. John, Assistant Drug Controller, Kollam, Pathanamthitta & Kottaym, districts inaugurated the event. Prof. Dr. Mathew George , Principal, Pushpagiri College of Pharmacy, who won the Kerala State Best Pharmacist Award (2014), have been honoured by Academics and Research Director Rev. Dr. Mathew Mazhzyancheril.



Inauguration Ceremony of Pharmacist's Day



Honouring the Chief Guest Sri. K. J. John, Assistant Drugs Controller

PHARMA WOCHЕ FISSO -2014

Pushpagiri College of Pharmacy organized "PHARMA WOCHЕ FISSO" the pharmacy week celebrations from 24th November to 28th November, 2014. As a part of this, we had also organized various program road shows like blood donation camp, awareness programme on organ donation by Rev. Fr. Davis Chiramel, Kidney Federation of India, orphanage visit, road shows to invoke the role of pharmacists in the health care team, National seminar-Pharma Luminence, an inspire programme –Pharma Inspire especially for the 11th & 12th standard students who visited our institution. The programme ends up with the farewell programme CIAO for the first batch of B-Pharm and M-Pharm students.



Inauguration ceremony of Pharma Woche Fisso-2014, by Sri. B. Rajan, President, Kerala State Pharmacy council, Thiruvananthapuram (24th November, 2014)



Oath Taking ceremony during National Pharmacy Week celebrations – 2014 (24th November,2014)



Inauguration ceremony of Awareness Programme on Organ Donation by Rev. Fr. Davis Chiramel, Kidney Federation of India. (24th November,2014)



Inauguration of Blood Donation Camp by Cine Artist cum Director Sri. Prem Prakash (25th November, 2014)



Inauguration of National Seminar *Pharma Luminece*- Honourable Guests and Dignitaries (26th November, 2014)



Inauguration of Pharma Inspire -2014 by Sri. Hari Kishore, IAS, Pathanamthitta District collector and Kumari Muktha, Cine Artist. (27th November, 2014)



Inauguration of Exhibition Hall by Sri. Hari Kishore, IAS, Pathanamthitta District collector (27th November, 2014)



Farewell Programme *CIAO* – First batch of KUHS B.Pharm & M. Pharm Students (28th November, 2014)



INDUSTRIAL VISITS - AT BIOCELL AND SAMI LABORATORIES, BANGALORE



TEACHER'S DAY CELEBRATION