



DIRECTOR GENERAL [DG] AS DEFENSE OF COUNTRY AND DEOXY GLUCOSE [DG] AS FORTIFICATION OF BODY

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Nirmala College of Pharmacy,

Muvattupuzha, District-Ernakulam, Kerala-
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Abstract: The ability of 2-deoxy-d-glucose (2-DG) to interfere with d-glucose metabolism demonstrates that nutrient and energy deprivation is an efficient tool to suppress SARS CoV-2 cell growth and survival. Acting as a d-glucose mimic, 2-DG inhibits glycolysis due to formation and intracellular accumulation of 2-deoxy-d-glucose-6-phosphate (2-DG6P), inhibiting the function of hexokinase and glucose-6-phosphate isomerase, and inducing cell death. In addition to glycolysis inhibition, other molecular processes are also affected by 2-DG. Attempts to improve 2-DG's drug-like properties, its role as a potential adjuvant for other chemotherapeutics, and novel 2-DG analogues as promising new anti-covid agents are discussed in this review.

Keywords: 2-deoxy-d-glucose, 2-DG analogs, glioblastoma, anti-covid therapy

Preamble: Acting as a d-glucose mimic, 2-DG inhibits glycolysis due to formation and intracellular accumulation of 2-deoxy-d-glucose-

carbon-14 has been a popular ligand for laboratory research in animal models, where distribution is assessed by tissue-slicing followed by autoradiography, sometimes in tandem with either conventional or electron microscopy.

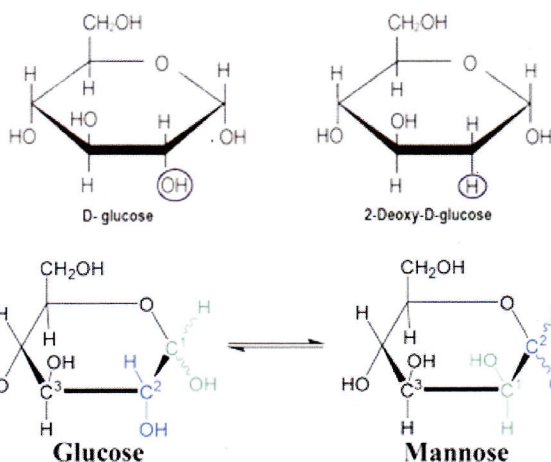


Figure-2: 2-DG & Structural resemblance with Glucose and Mannose

IUPAC: (4R,5S,6R)-6-(hydroxymethyl)oxane-2,4,5-triol

Other names: 2-Deoxyglucose, 2-Deoxy-d-mannose, 2-Deoxy-d-arabino-hexose, 2-DG

Chemical formula: $C_6H_{12}O_5$, Molar mass : 164.16 g/mol, Melting point: 142 to 144°C (288 to 291°F; 415 to 417 K)

2-DG is uptaken by the glucose transporters of the cell. Therefore, cells with higher glucose uptake, for example tumor cells, have also a higher uptake of 2-DG. Since 2-DG hampers cell growth, its use as a tumor therapeutic has been suggested, and in fact, 2-DG is in clinical trials.^[1-3] A recent clinical trial showed 2-DG can be tolerated at a dose of 63 mg/kg/day, however the observed cardiac side-effects (prolongation of the Q-T interval) at this dose and the fact that a majority of patients' (66%) cancer progressed casts doubt on the feasibility of this reagent for further clinical use.^[4] However, it is not completely clear how 2-DG inhibits cell growth. The fact that glycolysis is inhibited by 2-DG, seems not to be sufficient to explain why 2-DG treated cells stop growing.^[5] Because of its structural similarity to mannose, 2-DG has the potential to inhibit N-glycosylation in mammalian cells and other systems, and as such induces ER stress and the Unfolded Protein Response (UPR) pathway.^[6-8]

Clinicians have noted that 2-DG is metabolized in the pentose phosphate pathway in red blood cells at least, although the significance of this for other cell types and for cancer treatment in general is unclear.

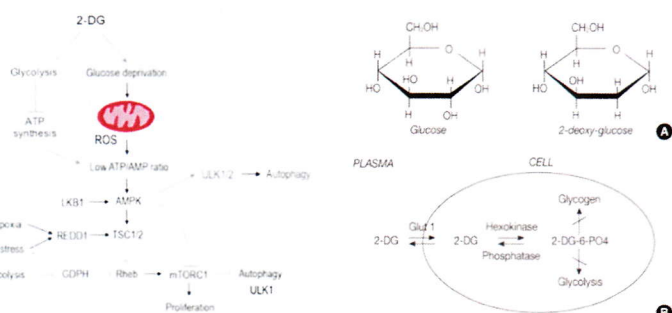


Figure-1: Autophagy in glucose uptake directed by 2-DG

2-Deoxy-d-glucose [CAS: 54-17-6] is a glucose molecule which has the 2-hydroxyl group replaced by hydrogen, so that it cannot undergo further glycolysis. As such; it acts to competitively inhibit the production of glucose-6-phosphate from glucose at the phosphoglucosomerase level (step 2 of glycolysis). In most cells, glucose hexokinase phosphorylates 2-deoxyglucose, trapping the product 2-deoxyglucose-6-phosphate intracellularly (with exception of liver and kidney); thus, labelled forms of 2-deoxyglucose serve as a good marker for tissue glucose uptake and hexokinase activity. Many cancers have elevated glucose uptake and hexokinase levels. 2-Deoxyglucose labelled with tritium or

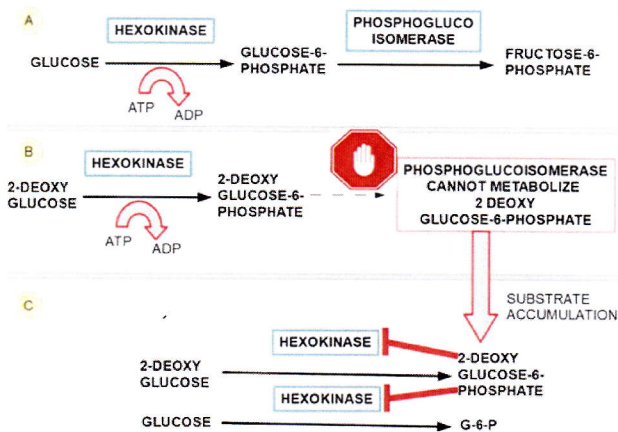


Figure-3: Hexokinase pathway

Work on the ketogenic diet as a treatment for epilepsy have investigated the role of glycolysis in the disease. 2-Deoxyglucose has been proposed by Garriga-Canut et al. as a mimic for the ketogenic diet, and shows great promise as a new anti-epileptic drug.^[9,10] The authors suggest that 2-DG works, in part, by increasing the expression of Brain-derived neurotrophic factor (BDNF), Nerve growth factor (NGF), Arc (protein) (ARC), and Basic fibroblast growth factor (FGF2).^[11] Such uses are complicated by the fact that 2-deoxyglucose does have some toxicity.

A study found that by combining the sugar 2-deoxy-D-glucose (2-DG) with fenofibrate, a compound that has been safely used in humans for more than 40 years to lower cholesterol and triglycerides, an entire tumor could effectively be targeted without the use of toxic chemotherapy.^[12,13]

2-DG has been used as a targeted optical imaging agent for fluorescent in-vivo imaging.^[14,15] In clinical medical imaging (PET scanning), fluorodeoxyglucose is used, where one of the 2-hydrogens of 2-deoxy-D-glucose is replaced with the positron-emitting isotope fluorine-18, which emits paired gamma rays, allowing distribution of the tracer to be imaged by external gamma camera(s). This is increasingly done in tandem with a CT function which is part of the same PET/CT machine, to allow better localization of small-volume tissue glucose-uptake differences.

On May 8, 2021, the Drugs Controller General of India approved an anti-COVID oral drug, developed by DRDO, for emergency use as adjunct therapy in moderate to severe coronavirus patients based on this compound. The drug comes in powder form in sachet, which is taken orally by dissolving it in water. Clinical trial results have shown that 2-DG helps in faster recovery of hospitalised patients and reduces supplemental oxygen dependence.^[16]

Resistance to 2-DG has been reported in HeLa cells and in yeast; in the latter, it involves the detoxification of a metabolite derived from 2-DG (2DG-6-phosphate) by a phosphatase.^[8,17,18] Despite the existence of such a phosphatase in human (named HDHD1A) However it is unclear whether it contributes to the resistance of human cells to 2DG or affects FDG-based imaging.

The present invention provides a process for the synthesis of 2-deoxy-D-glucose comprising haloalkoxylation of R-D-Glucal wherein R is selected from H and 3, 4, 6-tri-O-benzyl, to obtain alkyl 2-deoxy-2-halo-R- α/β -D-gluco/ mannopyranoside, converting alkyl 2-deoxy-2-halo-R- α/β -D-gluco/mannopyranoside by reduction to alkyl 2-deoxy- α/β -D-glucopyranoside, hydrolysing

alkyl 2-deoxy- α/β -D-glucopyranoside to 2-deoxy-D-glucose.^[19]

Scheme of synthesis:

The preferred synthetic reactions and conditions for each individual steps of the above process are set forth below.

The reaction scheme for the reactions involved in the process of the invention are also given below:

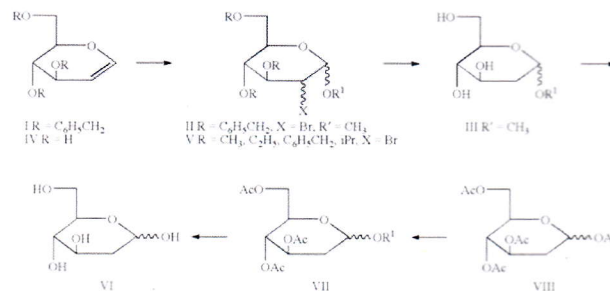


Figure-4: 2-DG synthetic scheme

The present invention provides a process for the synthesis of 2-deoxy-D-glucose comprising haloalkoxylation of R-D-Glucal wherein R is selected from H and 3, 4, 6-tri-O-benzyl, to obtain alkyl 2-deoxy-2-halo-R- α/β -D-gluco/ mannopyranoside, converting alkyl 2-deoxy-2-halo-R- α/β -D-gluco/mannopyranoside by reduction to alkyl 2-deoxy- α/β -D-glucopyranoside, hydrolysing alkyl 2-deoxy- α/β -D-glucopyranoside to 2-deoxy-D-glucose.^[19]

Scheme of synthesis:

The preferred synthetic reactions and conditions for each individual steps of the above process are set forth below.

The reaction scheme for the reactions involved in the process of the invention are also given below:

Innovative approach: The present invention relates to a process for the synthesis of 2-deoxy-D-glucose.

Background: 2-deoxy-D-glucose is useful in control of respiratory infections and for application as an antiviral agent for treatment of human genital herpes. Prior art for preparation of 2-deoxy-D-glucose while operable, tend to be expensive and time consuming.

Objects: The main object of the present invention is to provide a process for the synthesis of 2-deoxy-D-glucose resulting in good yield and with good purity. Another object of the invention is to provide an economical process for the synthesis of 2-deoxy-D-glucose.

Summary: A process that would produce 2-deoxy-D-glucose economically and with desired purity, is a welcome contribution to the art. This invention fulfils this need efficiently.

Accordingly, the present invention relates to a process for the synthesis of 2-deoxy-D-glucose comprising haloalkoxylation of R-D-glucal wherein R is selected from H and 3,4,6-tri-O-benzyl, to obtain alkyl 2-deoxy-2-halo-R- α/β -D-gluco/mannopyranoside, converting alkyl 2-deoxy-2-halo-R- α/β -D-gluco/mannopyranoside by reduction to alkyl 2-deoxy- α/β -D-glucopyranoside, hydrolysing alkyl 2-deoxy- α/β -D-glucopyranoside to 2-deoxy-D-glucose.^[20-25]

In one embodiment of the invention, the alkyl 2-deoxy- α/β -D-glucopyranoside is obtained by

- haloalkoxylating 3,4,6, tri-O-benzyl-D-glucal to alkyl 2-deoxy-2-halo-3,4,6-tri-O-benzyl- α/β -D-gluco-/mannopyranoside,
- subjecting alkyl 2-deoxy-2-halo-3,4,6-tri-O-benzyl- α/β -D-gluco/mannopyranoside to reductive dehalogenation and debenzilation to obtain alkyl 2-deoxy- α/β -D-glucopyranoside.

In another embodiment of the invention, in step (a) haloalkoxylation of 3,4,6-tri-O-benzyl-D-glucal is carried out by reaction with a haloalkoxylating agent selected from a N-halosuccinimide and a N-haloacetamide, and alcohol.

In another embodiment of the invention, alkyl 2-deoxy- α/β -D-glucopyranoside is obtained by

(a) haloalkoxylating D-glucal to alkyl 2-deoxy-2-halo- α/β -D-glucopyranoside;

(b) subjecting alkyl 2-deoxy-2-halo- α/β -D-glucopyranoside to reductive dehalogenation and hydrogenation to obtain alkyl 2-deoxy- α/β -D-glucopyranoside.

Converting 3,4,6-tri-O-benzyl-D-glucal (I) to alkyl 2-deoxy-2-halo-3,4,6-tri-O-benzyl- α/β -D-glucopyranoside (II).

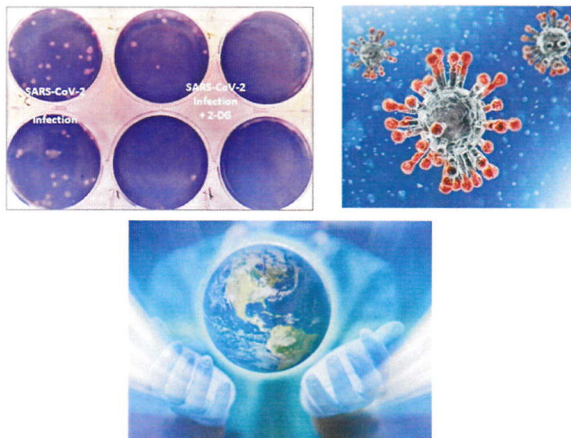


Figure-5: Serological culture of SARS-CoV-2 with 2-DG

Conclusion: With the country battling the second wave of Covid-19 infections, The Drugs Controller General of India (DCGI) on Saturday [8th May 2021] approved a drug developed by the DRDO for emergency use. The drug: 2-deoxy-D-glucose (2-DG) - has been approved as an adjunct therapy in moderate to severe cases of coronavirus. Clinical trial results have shown that this molecule helps in faster recovery of hospitalized patients and reduces supplemental oxygen dependence, an official of the Defence Research and Development Organisation (DRDO) was quoted as saying. According to the official statement, "clinical trial results have shown that this molecule helps in faster recovery of hospitalised patients and reduces supplemental oxygen dependence." "Higher proportion of patients treated with 2-DG showed RT-PCR negative conversion in COVID patients. The drug will be of immense benefit to the people suffering from Covid-19," the statement goes on to say. The 2-DG drug, which comes in powder form in sachets, has to be taken orally by dissolving it in water. It accumulates in the virus infected cells and prevents virus growth by stopping viral synthesis and energy production," said the official statement by the Government of India. The DRDO says that the 2-deoxy-D-glucose (2-DG) drug can easily be produced and made available in plenty in the country since it is a generic molecule and analogue of glucose.

GPAT WINNERS



Aiswarya Suresh
Rank :1545



Aswathy Surendran
Rank:2137

- Unveiling CHIP: The New Age Business Strategy, Organised By: Junior Chamber International, Kottayam, 24/03/2021
- Aware and Beware ; Responsible usage of medicines, Organised By: Junior Chamber International , Karmugul, Date:23/03/2021

Dr. Badmanaban R



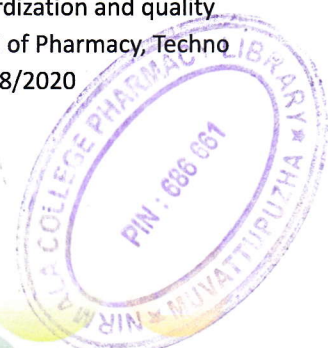
RESOURCE PERSONS DETAILS:

Dr. Fels Saju



- TOPIC:Entrepreneurship in pharmacy education ,Organised By: Alshifa College Of Pharmacy, Date: 29/04/2021
- Topic: Fine Tune your Pharmacy Career ,Organised By: Al Azhar College Of Pharmacy, Thodupuzha, Date: 26/03/2021

- Topic: Outcomes based education system for pharmacy, Organised By: School of pharmacy, Techno university , Kolkata, Date: 19/12/2020
- Topic: Marker based standardization and quality control, Organised By: School of Pharmacy, Techno University Kolkata, Date:9/08/2020



GRADUATION CEREMONY




The graduation ceremony of pharm-D (2014-2020) batch students was conducted ceremoniously. The inaugural address was delivered by Administrator Rev.Fr.Jos Mathai Mailadiath, Principal Dr.Badmanaban R gave the graduation day speech.

NILA

MODULE XI

APPLICATIONS OF COMPUTATIONAL CLINICAL BIO-PHARMACEUTICS IN PHARMACEUTICAL PRODUCT DEVELOPMENT




The management, staff and students of Nirmala College of Pharmacy cordially invites you to

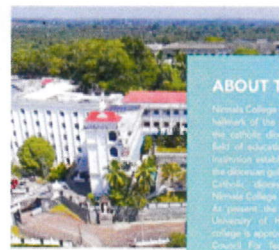
INTERNATIONAL CONFERENCE ON
APPLICATIONS OF COMPUTATIONAL CLINICAL
BIO-PHARMACEUTICS
IN PHARMACEUTICAL PRODUCT DEVELOPMENT

22nd to 28th August 2020

Sponsored by



Organized by
The Department of Pharmaceutics
Nirmala College Of Pharmacy, Muvattupuzha
Ernakulam Dist, Kerala



ABOUT THE COLLEGE

Nirmala College of Pharmacy (NCP) is yet another landmark of the commitment and expertise of the catholic diocese of Kottayam in the field of education. NCP is a vibrant multi-technic established in 2004 as a memorial of the glorious golden Jubilee celebrated by the Catholic Bishops of Kottayam under Nirmala College Society, Puzha, Kerala 686001. At present the college is affiliated to Kuvempu University of Health Sciences, Thiruvananthapuram, India. The college is approved by Government of Kerala, All India Council For Technical Education (AICTE) and Pharmacy Council of India (PCI), New Delhi.

ABOUT THE PROGRAM

In the last few decades, the discipline of biopharmaceutics has undergone considerable advances, particularly with regard to bioavailability and bioequivalence as they relate to product quality and regulatory standards of regional, Computational clinical Biopharmaceutics introduces fundamental concepts, methods and advances in the areas of absorption, distribution, and permeability and their key applications in drug form performance. The conference presents an integrated view in linking pharmacokinetics to the biological consequences of drug products and strategies those for decision making in drug development.

Who should attend the conference?

All who are interested in pharmaceutical research

Registration Fee
Rs 200/-

Click on the link for registration and payment
<https://www.gopayment.com/india-travel@nirmalacollegeofpharmacy>

PROGRAM CHART

<p>DAY 1 - 22/8/20 SATURDAY Time: 11.30AM - 01.00PM Understanding Drug Substances</p> <p>Time: 02.00PM - 03.30PM Bio Relevant in Vitro Test</p> <p>DAY 2 - 23/8/20 SUNDAY Time: 11.00AM - 12.30PM IVVC</p> <p>Time: 02.00PM - 03.30PM Physiologically Based Pharmacokinetic (PbPK) Modelling</p> <p>DAY 3 - 24/8/20 MONDAY Time: 02.00PM - 03.30PM The Next generation of Biopharmaceutics</p> <p>DAY 4 - 25/8/20 TUESDAY Time: 11.00AM - 12.30PM Quality by Design (QbD) Approach in Formulation Development</p> <p>DAY 5 - 26/8/20 WEDNESDAY Time: 11.00AM - 12.30PM Pharmaceutical Design of Experiments</p>	<p>Speaker DR RAJAGURU M Senior Technical Manager Clinical Research Dr. Reddy's Mumbai</p>  <p>Speaker DR K. GOVINDHARAN M. Pharm, PhD Professor and head of Department of Pharmaceutics JSS College of Pharmacy, Ooty, TN, India</p>  <p>Speaker DR V.V.S NARAYANA REDDY RABH M. Pharm, PhD Associate and head of Department of Pharmaceutics JSS College of Pharmacy, Ooty, TN, India</p> 
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<p>DAY 6 - 27/8/20 THURSDAY Time: 11.00AM - 12.30PM Understanding the Peer Review Concepts</p> <p>Speaker DR. M.K. UNNIKRISHNAN M. Pharm, PhD Principal Nirmala College of Pharmacy, Muvattupuzha, Kerala, India</p> 	<p>Time: 02.00PM - 03.30PM Pharmacoeconomics and Outcomes Research</p> <p>Speaker DR. OLIVIER THOMAS Associate Professor & Chair Department of Pharmacy Practice College of Pharmacy, QUL Medical University</p> 
<p>DAY 7 - 28/8/20 FRIDAY Time: 11.00AM - 12.30PM Challenges in Extemporaneous Compounding</p>	

ORGANIZING COMMITTEE		
<p>Patron His Excellency Mr George Mathakandathil Bishop, Kottayam Diocese, Kerala</p> <p>Manager Rev. Msgr. Cherian Kapparakkudi</p> <p>Administrator Rev. Fr. Jos Mathai Malalath</p> <p>Co-ordinator Prof. Dr. Badmanaban R Principal</p>	<p>Joint Convenors Dr. Deepa Jose Vice Principal (NCP) Department of Pharmaceutical Sciences</p> <p>Prof. Dr. S. Kapureddy M.Ph.D. Professor of Pharmaceutics Dr. Manjula Mathews</p>	<p>Co-Organizers Ms. Shalini Mathew Ms. Elizabeth Mathew Ms. Charanjeev Dr. Pooja Dr. Pooja Ms. Pooja Ms. Shalini Ms. Shalini Ms. Shalini</p>

A seven day International Conference was organized by the pharmaceutics department with more than 500 delegates including Pharma students, Faculties, research scholars from various pharmacy institutions all over India on "APPLICATIONS OF COMPUTATIONAL CLINICAL BIO-PHARMACEUTICS IN PHARMACEUTICAL PRODUCT DEVELOPMENT". There were nine plenary lectures by eminent speakers on topics of relevance in pharmaceutical product development.

NILA **MODULE XII**

INTERNATIONAL CONFERENCE ON INNOVATIONS IN DEVELOPING PHYTOPHARMACEUTICALS FROM INDIGENOUS MEDICINE."

In "Nirmala College of Pharmacy, Department of Pharmacognosy organised a webinar entitled "International Conference on Innovations in Developing Phytopharmaceuticals from Indigenous Medicine." as 12th Module of NILA (Nirmala Ignites Learning Aspiration). The main aim of the seminar is to create awareness on the regulations and possible innovations and scope of

18th September 2020

NILA
NIRMALA IGNITES LEARNING ASPIRATION
MODULE 12

International Conference on "Innovations in Developing Phytopharmaceuticals from Indigenous medicine"

Organized by
The Department of Pharmacognosy
Nirmala College of Pharmacy, Muvattupuzha, Ernakulam District, Kerala - 686661



Dr. Vivekanandan Kalaiselvan
Principal Scientific Officer
Indian Pharmacopoeial Commission,
Ghaziabad, UP



Dr. Mahendran Sekar
Associate Professor
Faculty of Pharmacy and Health Sciences
University Kuala Lumpur Royal College of
Medicine Perak, Malaysia



Dr. Beena Briget Kuriakose
Assistant Professor
College of Applied Sciences,
King Khalid University,
Kingdom of Saudi Arabia

Who can participate ?

- World Wide Pharmacy fraternity.
- All interested in the development of phytopharmaceuticals

Key takeaways

- Importance and demand of clinically proven phytopharmaceuticals.
- Phytopharmaceutical regulations in India.
- A fire for research

ABOUT COLLEGE

Nirmala College of Pharmacy (NCP) is yet another hallmark of the commitment and experience of the Catholic Diocese of Kottayam in the field of education. NCP is a Christian minority institution established in 2004 as a memorial of the diocesan golden jubilee. It is managed by the Catholic Diocese of Kottayam under Nirmala College Society. (Reg. No. ER/928/2001) At present the college is affiliated to KUHS, Thiruvananthapuram, Kerala. All India Council For Technical Education (AICTE) and Pharmacy Council of India (PCI), New Delhi.



clinically proven phytopharma-ceuticals for betterment of health of society. The first session was on the **Topic: "Moving from Traditional Research to Innovative Natural Products for Sustainable Future**

and Development." led by **Dr. Mahendran Sekar** (Associate Professor, Faculty of Pharmacy and Health Sciences, University Kuala Lumpur Royal College of Medicine Perak, Malaysia).

The second session was on the Topic: **"Phytopharmaceutical Regulations in India-Scope for New Drug Development"** led by **Dr. Vivekanandan Kalaiselvan** (Principal Scientific Officer, Indian Pharmacopoeial Commission, Ghaziabad, Uttar Pradesh). The third session was on the **Topic: "Nature's Clues in Drug Discovery"** led by **Dr. Beena Briget Kuriakose** (Assistant Professor, College of Applied Sciences, King Khalid University, Kingdom of Saudi Arabia). In the webinar about 100 participants from different institutions were benefited and was very informative and useful.

ORGANIZING COMMITTEE

Patron
His Excellency
Mar. George Madathikandathil
Bishop, Kottayam Diocese

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Administrator
Rev. Fr. Jos Mathai Mailadiath

Convener
Prof. Dr. Badmanaban R
Principal and Head of The Department, Pharmacognosy

Joint Convener
Dr. Deepa Jose
Vice Principal, Head of The Department, Pharmaceutical Chemistry

Ms. Lins Mary Joy
Associate Professor, Department of Pharmacognosy

Dr. Prasanth B
Assistant Professor, Department of Pharmacognosy

Co-ordinators
Dr. Fets Saju
Assistant Professor, Department of Pharmaceutics

Mr. Sebin Sebastian Mathew
Assistant Professor, IT Department

PROGRAMME CHART
18th September 2020

12:15 pm - 12:30 pm:
Introduction, Keynote Address and Inauguration

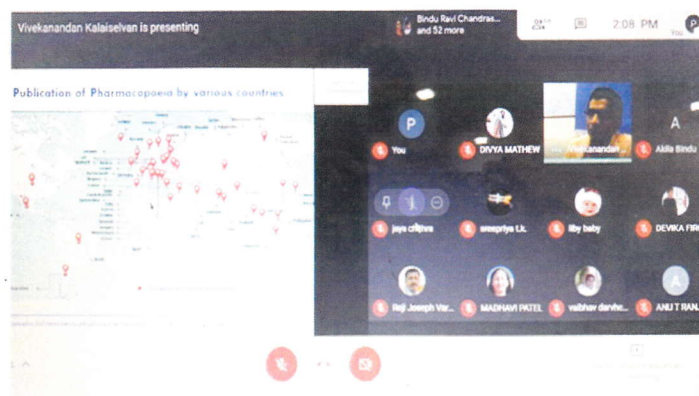
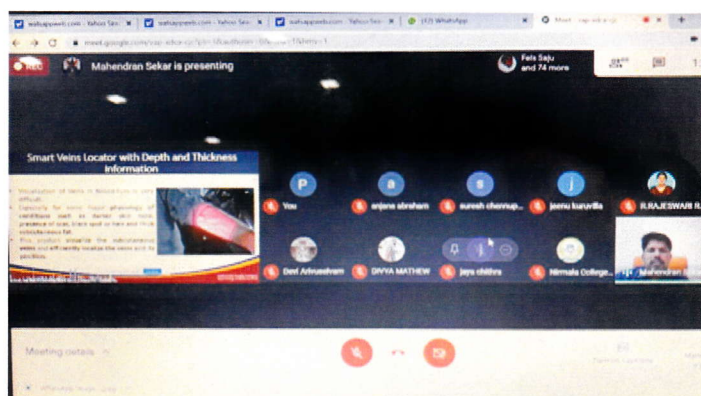
SCIENTIFIC SESSIONS

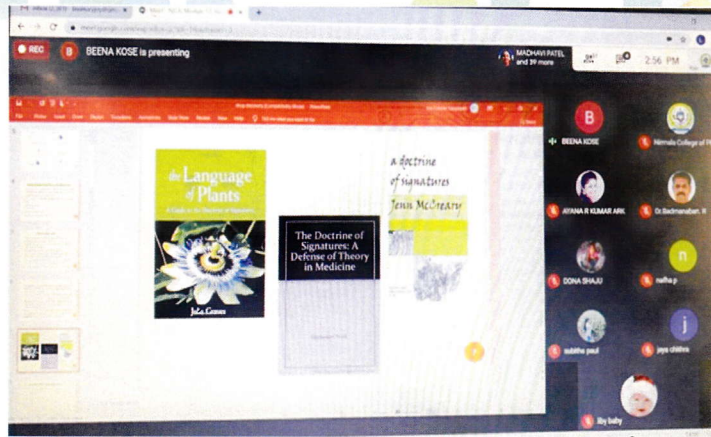
12:30 pm - 1:30 pm:
Topic: "Moving from Traditional Research to Innovative Natural Products for Sustainable Future and Development."
Resource Person: **Dr. Mahendran Sekar**

1:30 pm - 2:20 pm:
Topic: "Phytopharmaceutical Regulations in India-Scope for New Drug Development"
Resource Person: **Dr. Vivekanandan Kalaiselvan**

2:30 pm - 3:20 pm:
Topic: "Nature's Clues In Drug Discovery"
Resource Person: **Dr. Beena Briget Kuriakose**

3:30 pm: Conclusion



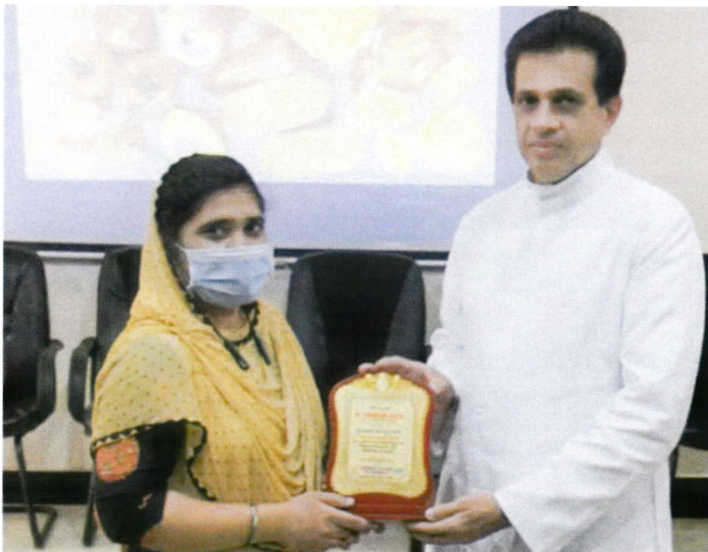


PIPE COMPOSTING IN HOUSES OF AVOLYPANCHAYATH



NUTRITION AMONG YOUTH

The awareness program conducted by NSS unit on the topic "Nutrition among youth".



NSS unit of Nirmala College of pharmacy, have provided free pipe composts over twelve houses of avoly panchayat.

Entrepreneurship Awareness Program

The entrepreneurship awareness program organised in association with District Industries centre, Ernakulam.

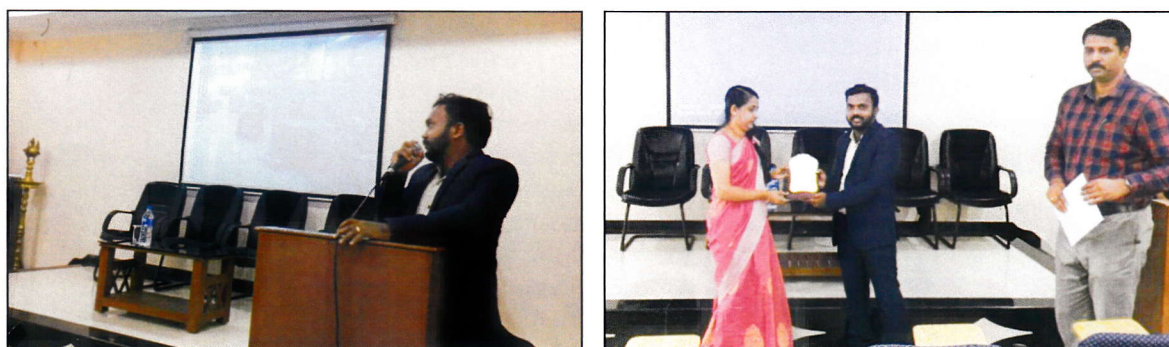
Resource Persons : **Mr.V. Anilkumar, Ms. PNamitha**, Taluk Industries Officers

Ms.Priya Paul, Taluk Industry development officer



NEAR TO REAL EXPERIENCE AND DISCUSSION ON PHARMACEUTICAL INDUSTRY

Resource person: **Mr.Aghil M Joy**, Manufacturing Director ,Clans Life care, Kochi.



DETAILS OF WORKSHOPS/SEMINAR/GUEST LECTURE CONDUCTED (JULY 2020-JUNE 2021)

SL	DATE	TOPIC	SPEAKER	Seminar/ Workshop
1	11/7/20	Statistical software training program	Dr. Muralidhara Anandamurthy (Member, JMP global academic)	Webinar
2	22/07/20	Patient-centric drug information by reducing medication errors	Mr. VikasArora & Ms. Sheena Chugh	Webinar
3	04/08/20	Pharma graduate to a scientist-an expedition"	Dr. Anish C.K. (Principal Scientist and team lead, Jansen Vaccines, Netherlands)	Webinar
4	17/08/20	"Facts of Human brain : Rewards and Memory"	Dr.Arulmozhi S (HOD Department of Pharmacology, Pune College of Pharmacy)	Webinar
5	22/08/20	Drug reposition: transformation of hardwork into smart work	Dr.Bijo Mathew , M Pharm, PhD, Division of Drug Design & Chemistry Research Lab, Associate Professor ,Ahalia School of Pharmacy, Palakkad	Webinar
6	22-28 th / 08/2020	Applications of computational clinical bio-pharmaceutics in pharmaceutical product development	DR.RAJKUMAR M ,Deputy General , Clinical Research, USV Pvt.Ltd Mumbai DR.K.GOWTHAMARAJAN M. Pharm, PhD Professor and head of Department of pharmaceuticals J.S.S. College of Pharmacy, Ooty, TN, India	International Conference

SL	DATE	TOPIC	SPEAKER	Seminar/ Workshop
			Dr.VVS Narayana Reddy Kari, M. Pharm, PhD Professor and head of Department of pharmaceutics J.S.S. College of Pharmacy, Ooty, TN, India DR. M.K. UNNIKRISHNAN M. Pharm, PhD Principal National college of pharmacy Kozhikode, Kerala, India DR.DIXON THOMAS Associate Professor & Chair Department of Pharmacy Practice College of Pharmacy, Gulf Medical University DR. SHYAM SUNDER V PANCHOLI Former professor College of Pharmacy, Jazan, Kingdom of Saudi Arabia	
7	18/09/20	"MOODLE A PLATFORM FOR ONLINE EDUCATION"	Dr.Shaji George, Professor and Head of Pharmacy Practice department, Nirmala College of Pharmacy	FDP
8	18/9/20	"International Conference on Innovations in Developing Phytopharmaceuticals from Indigenous Medicine."	1. Dr. Vivekanandan Kalaiselvan Principal Scientific Officer Indian Pharmacopoeial Commission, Ghaziabad, Uttar Pradesh. 2. Dr. Mahendran Sekar Associate Professor, Faculty of Pharmacy and Health Sciences University Kuala Lumpur Royal College of Medicine Perak, Malaysia. 3. Dr. Beena Briget Kuriakose Assistant Professor College of Applied Sciences King Khalid University Kingdom of Saudi Arabia	International Webinar
9	2-10-2020 & 3-10-2020	"Intravenous medication safety and role of practicing pharmacist"	Dr. Manjula Devi A S, Associate Professor, SRIPS, Coimbatore.	International Webinar
10	17/10/2020	"Maintenance and Calibration of Laboratory Equipments"	Mr. Shajan P J, Technical Officer, VJCT, Vazhakulam	Training programme
11	29/10/2020	"MOODLE A PLATFORM FOR ONLINE EDUCATION"	Dr.Fels Saju, Assistant Professor, Pharmaceutics Department, Nirmala College of Pharmacy	FDP
12	30/12/20	"Importance of regulatory affairs in pharmacy and medical devices"	Mr. Ravi Krishnan, Technical Manager, Quality Assurance and Regulatory Affairs, Wipro Ltd., Bangalore	Invited talk
13	08/02/21	Workshop On "In Silico Drug Design Using Autodock"	Dr. Prasanth Francis, Assistant Professor, Pharmaceutical Chemistry department, Nirmala College of Pharmacy	Hands on training
14	19/02/21	A Near To Real Experience And Discussion On Pharmaceutical Industry	Mr. Aghil M Joy, Manufacturing Director/Partner, Clans Life care, Kochi.	Invited talk
15	23/2/21	Micromedex Drug Information Software	Dr.Merin Joseph, Assistant professor, Pharmacy Practice department, Nirmala College of Pharmacy	Hands on training

SL	DATE	TOPIC	SPEAKER	Seminar/ Workshop
16	03/03/21	Menstrual health and hygiene	Ms.Kavya R Menon, Eco-Feminist ,Consultant –Gender and environment	Invited talk
17	10/03/21	Add –on course on essential management skills for career development	Mr.JaisonArackal, Director and Chief Trainer, Success Mine Training	Personality development program
18	23/5/21	Systematic Review and Meta -Analysis	Mr. Muhammed Rashid ,DST INSPIRE Fellow, Research Scholar ,MCOPS,MAHE	Online workshop and hands on training
19	27/5/21	HPTLC : Technique and pharma applications	Ms.Sneha Singh, Application specialist, ANCHROM	Webinar
20	29/05/21	Preparation for a career in regulatory affairs	Dr.AnjithaJoy,Consultant regulatory specialist RRDM,GSK	Webinar

Day Celebration- 2020

25/08/2020



National Pharmacy week Celebration 2020

21/11/2020



All India Pharmacy Quiz Preliminary 2020



CHRISTMAS CELEBRATION

fab-Yule-Us 2020

24/12/2020



World Pharmacist Day

25/09/2020



WORLD HEART DAY
29 SEP



World Diabetes Day

(14/11/2020)



World Aids Day

01/12/2020



World cancer day

04/02/2021



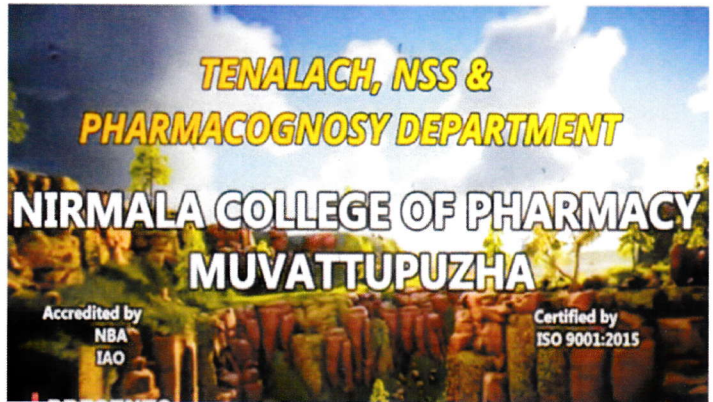
International Women's day celebration

08/03/2021



World Environment day

5/6/2021



Best Undergraduate Student E-Poster Presentation Award



Ms. Elizabeth Rachel James
2nd Pharm D.

RAKCOPS-ICDD E-CONFERENCE
UAE On May 23,24, 2021

2nd International Pharma Conference Pharma 2021 Online

Best Student Presentation Award



Vaishnavi Vijay
(1st Pharm D)
First Prize)



Sneha Susan Samuel
(1st Pharm D)
Second Prize)

6th International conference
on clinical pharmacy "Redefining clinical pharmacy
practice and education:
Rising to the pandemic challenge"
conducted during January 8-9, 2021



Anitta Shaji
(Pharm D Intern)

Congratulations

PLACEMENTS-PHARM D (2014-2020 BATCH)



Mr. Aby Paul
Clinical Pharmacist
Shenoy's Care Pvt. Ltd., Kochi
Rs.2,76,000/- per annum



Ms. Amratha Thomas
Clinical Data Programming
Associate, IQVIA, Kochi
Rs. 3,70,992/- per annum



Ms. Aneeta Jacob
Clinical process coordinator
IQVIA, Kochi
Rs. 3,13,200/- per annum



Ms. Anitta Merin Augustine
Clinical Process Coordinator
IQVIA, Kochi
Rs. 3,13,200/- per annum



Ms. Anjitha Roy
Consultant Regulatory
specialist RRDM, GSK Bangalore
Rs. 4,25,002 per annum



Mr. Basil John
Research Associate Trainee,
Wissen Infotech, Bangalore
Rs.2,20,000 per annum



Ms. Dona Johnson
Drug Safety Associate trainee
Technosoft, Bangalore
Rs. 1,89,996 per annum



Mr. Edwin Antony
Clinical Data Programming
Associate IQVIA, Kochi
Rs. 4,22,267/- per annum



Ms. Jeena Jacob
Research Associate Trainee
Wissen Infotech, Bangalore
Rs. 3,61,500/- per annum



Ms. Jeeva James
Clinical Process Coordinator
IQVIA, Kochi
Rs. 3,13,200/- per annum



Mr. Joel Joby
Drug Safety Associate trainee
Technosoft, Bangalore
Rs. 1,99,992/- per annum



Ms. Joyal Anna Babu
Clinical Research Coordinator
Lisie Hospital, Kochi
Rs.1,44,000/- per annum



Ms. Josteena Johny
Officer operations & QC
Walstan Benezet Life, Kochi
Rs.2,40,000/- per annum



Ms. Lancy Morris
Junior Associate: Scientific
WritingIndegene Pvt. Ltd.
Rs.3,80,000/- per annum



Ms. Maria James
Safety Associate Trainee
Wissen Infotech, Bangalore
Rs.3,61,500/- per annum



Ms. Mariya Babu
Research Associate Trainee
Wissen Infotech, Bangalore
Rs.3,61,500/- per annum



Ms. Merin Joshy
Safety Associate Trainee
Wissen Infotech, Bangalore
Rs.3,61,500/- per annum



Ms. Neethu Mariam Johny
Safety associate trainee
Wissen Infotech, Bangalore
Rs.3,61,500/- per annum



Ms. Niya Mariya
Research Associate Trainee
Wissen Infotech, Bangalore
Rs. 3,61,500/- per annum



Ms. Sandra Reji
Centralized Monitoring
Assistant, IQVIA, Kochi
Rs.3,13,200/- per annum



Ms. Sandramol Shaji
Intern-Patient Advocate
Navya Technologies Pvt. Ltd.
Bangalore
Rs.2,16,000/- per annum



Ms. Sanjana Charley
Safety Science Analyst,
Pharma Leaf India Pvt. Ltd., Bangalore
Rs. 3,28,572/- per annum



Mr. Stelvin Antony
Clinical Pharmacist
Apollo Adlux Hospital, Kochi
Rs 2,00,000/- per annum



Mr. Sanjo Saijan
Clinical Pharmacist
Shenoy's Care Pvt. Ltd., Kochi
Rs.2,76,000/- per annum



Ms. Swapna Saju
Research Associate Trainee
Wissen Infotech, Bangalore
Rs. 3,61,500/- per annum



Ms. Swetha Jose
Pharmacy Trainer
Central Govt. Project(DDU-GKY)
Delwin Formulations, Peermadu
Rs. 1,80,000/- per annum

Congratulations.... PLACEMENTS

B.Pharm



Afna Azeez



Agnes Mathew



Amrutha Soman



Anitta C Jaison



Ann Aswathy Thomas



Bella Baby



Jashna K Kani



Jeffin James



Sahila T S



Teresa Cyriac



Toms Augustine

Editors Desk...



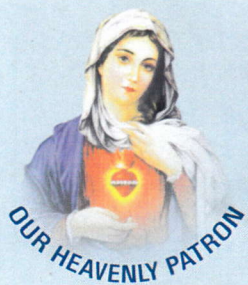
Dr. Merrin Joseph

Assistant Professor
Department of Pharmacy Practice



Ms. Sonia

Assistant Professor
Department of Pharmaceutics



Nirmala College of Pharmacy Muvattupuzha

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COURSES :

B.Pharm

(Batchelor of Pharmacy - 4 yrs)

M.Pharm in Pharmaceutics (2 yrs)

Pharm.D (Doctor of Pharmacy - 6 yrs)

